

## ARTICLES

### Nationalized Medicine A Realistic Approach

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(A communication to the Nova Scotia Medical Society.)

I wish to make it clear at the outset that I am not here as an advocate of nationalized medicine, but my talk will present the problem to you from the academic standpoint and in the spirit of debate, giving what I think is a reasoned explanation of what has happened in Britain.

Winston Churchill once said "the further one looks back the more one can look forward," and so when controversies arise it is profitable to look back into history where one usually finds that very few problems are new. Nationalized Medicine in Britain began in 1948 A.D. One can go back as far as about 1948 B.C., in which year King Hammurabi, of Babylon, issued a code of medical practice which was published in every market place, and which laid down the conditions of practice, the rewards for good service and savage penalties for failure. We can be comforted that no modern government would require the surgeon's hands to be cut off when an operation is unsuccessful.

We are all familiar with the centrally regulated public health measures of the Jews, which were controlled by the priests, and peculiarly fitted to a nomadic tribe. We are all aware of the State hospitals and public health measures of the Romans and Greeks.

In England some measure of State provision began with the Poor Laws of Queen Elizabeth and, to skip the centuries and come to more modern times, we have seen the intervention of the State becoming more and more prominent during the whole of this century.

There were many public health measures in the later part of the 19th century, but deliberate and well thought out State intervention first began with the Boer War—the first of the wars of this century.

To many the Boer War is a trivial affair, but it revealed to statesmen the appalling state of health of those who volunteered for service. It was imperative to improve the general standard of physical fitness of the nation, in view of the growth in size of continental armies and the inevitability of a European war.

Hence the Boer War was followed by the introduction of a School Medical Service and Maternity and Child Welfare Services.

The Ministry of Health was born out of the second war in 1914-1918, with an extension of State Services for venereal disease, tuberculosis and many other branches of medicine.

On the outbreak of the 1939-45 struggle, the country was forced to establish an Emergency Medical Service which could be run only by the State. This has formed the pattern of the present service.

So much for the historical aspect, but what of other factors. What of the changing face of medicine?

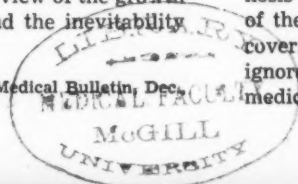
New advances in medicine now come with such rapidity and new specialisms spring up with such speed that few in this generation appreciate that less than a half century ago the practice of medicine was almost entirely empirical. At the beginning of this century and for centuries before the practice of medicine could be conducted by individual great clinicians with no more equipment than their five senses, a few simple instruments and the wealth of their experience.

But now a clinical opinion is usually no more than an orientating contribution leading to the performance of a host of scientific procedures designed to confirm or refute the opinion. For example, it may cost £50 to find the cause of a pyrexia of unknown origin before it can be determined that it is not a public menace or is unsuitable for modern chemotherapy.

Likewise with therapeutics. Think of the primary cost of penicillin or streptomycin or Compound E, as compared with the simple and mainly ineffective remedies of the early part of the century. Were there not some subsidy, who is there who could afford them?

So also with surgery. The general surgeon is almost unknown whilst many specialists require their own not inconsiderable team, including special anaesthetists. One can guess that the cost of a thoracoplasty, from the time the patient enters hospital to the time of complete discharge, may amount to as much as £1,000. Previously, such patients died. Now someone has to pay. But who?

The vast increase in the cost of medical diagnosis and treatment arises from the development of the scientific aspects of medicine based on discoveries of cause, of which our predecessors were ignorant. Cost is an increasing liability as medicine advances; it will never decline. In brief,



the position is that because of these advances there are relatively few people who can afford to be ill with nothing more behind them than their own resources.

The general economic situation enters into this tangle. The increased cost of everyday living. The spiral of rising wages which, in the lower grades of society, never reaches a level sufficiently high to pay for medical treatment and in the higher grades is largely discounted by immense taxation.

In England the future evolution of the country was surveyed during the war in what is known as the Beveridge Report, which is aimed at devising measures for what is called Social Security, that is, security for all classes from want, unemployment, lack of medical attention and other hardships, down to such realistic but inescapable matters as the cost of being buried. You should appreciate that during the war the whole British nation lived under conditions of great tension, never knowing, at least in the great cities, whether its homes would be intact from day to day, whether these homes would be actively invaded, and under such unpleasant conditions as black-out, strict rationing and long hours of work. The natural psychological reaction to such years of strain is a desire for security. This, rather than a trend to the left, is the explanation of Britain's social measures. The country has not gone communist, and never will go.

It is important to realize that the Beveridge Report would have formed the basis of post-war policy in England whatever Government had been returned to power, though the interpretation and manner of implementation might have been greatly different according to the nature of the Government.

With these aspects in mind one is forced to conclude from the evidence of history, from the changes which have come over the face of medicine leading to a tremendous increase in the cost of medical treatment, from the vast increase in the cost of living and from the ideals expressed in the Beveridge Report (whatever one's political views) that some form of subsidized medical service has come to be essential.

Anyone who does not acknowledge this is either not realistic or is unaware of the changes which have come over medicine or of the subtle evolution in civilized thought which has become sympathetic to the provision of efficient medical attention to all sections of the community.

In England the experiment is being made of providing these medical services by wholesale State control. To a large extent this policy has been forced upon the country because of the immense loss of manpower by the devastation of three wars, whereby it has become imperative for the State to intervene to ensure the preservation of

the life and of the efficiency of every individual, rich and poor.

Whether it has been right to embark upon such an expensive programme at a time of economic stress, rather than on a wave of prosperity, is a political matter and outside the scope of my subject. I am merely discussing the subject from an academic aspect, my main point being that all civilized nations are sooner or later almost bound to adopt some form of subsidized medical service.

If this be acknowledged then what form shall subsidy take? Looking at history again we appreciate that in the 18th century the great voluntary hospitals were founded and endowed by rich, and sometimes pious, men and women to provide a medical service for the indigenous poor. This served for more than a century, and indeed, until wars disturbed economic values and until medicine had passed from the heyday of the great clinician to the stage which demanded an expensive team and expensive ancillaries.

The voluntary system began to totter about 1920 with the imposition of charges for admission according to income and with the development of the financial problems of the oppressed middle classes, the backbone of any country, in addition to the poor who are always with us.

The final blow to the voluntary system in England was in the 1939-45 war which called for, demanded, the creation of an Emergency Medical Service to meet the hazards of war, otherwise the hospital system of the country would have broken with the first air raids. The colossal cost of this E.M.S. could be borne by none but the State. Upon the experience of the E.M.S. the State Medical Service has been founded.

What are the alternative methods for subsidizing a medical service? By voluntary subscription, as of old, coupled with a charge where the income level warrants a charge? I do not myself think this is practicable. Rockefellers and Nuffields will not be seen again, and the amount raised by these means will never again keep pace with the increasing cost of medical attention.

Can it be done by some form of private enterprise such as the Banks or the Insurance Companies realizing that many prudent people effect insurance against illness though the premiums are high. A voluntary scheme cannot cover the whole nation, whilst a compulsory scheme means the State, for only the State can exert compulsion.

And whoever controls the finance, whether it be the State or an insurance company, there is inevitably the exercising of control over expenditure and the host of regulations and mass of paper work which such control entails. Practical aspects really demand that the State must provide the money whether by a small poll tax on all or the heavier taxation of those who can best afford it. **Such details must be left to financiers and to**

the customary procedures of the country concerned.

The vital matter is how much control is to be exercised by those who hold the purse strings and how much latitude and freedom can be left to the profession which hitherto has practiced medicine, not without credit, as, when and how it pleases. Our fundamental sentiments and whole instincts are opposed to bureaucratic control of an individualistic profession.

This matter of freedom from control has been one of the main items of contention in England where a complete and comprehensive service has been imposed by legislation.

Some of the details of the struggle are worth recalling.

The profession insisted on about six major points and showed, by a plebiscite, that unless these points were conceded they would not operate the service.

1. That in the public interest the terms of service should not lead directly or indirectly to the profession becoming full time salaried servants of the State. This, in effect, meant that all should have opportunity to continue private practice in toto or in part, as they wished. This point was gained to the extent of forcing the Government to introduce an amending bill in which it is decreed that a full time salaried service can only be imposed by new legislation and not by regulation. A Government cannot, of course, bind its successors, but a new Act means publicity and opportunity to oppose. It is, of course, voluntary to join the service but, in practice, most have joined the service on account of economic pressure and this is especially so among the young in contrast to those who have been established in practice for years.

2. That the profession should be free to exercise the art and science of medicine according to its traditions, standards and knowledge, the individual doctor retaining full responsibility for the care of the patient, freedom of judgment, action, speech and publication without interference with his professional work.

- 3 That the patient be free to choose his own doctor and to change his doctor and likewise the hospital in which he is treated. The patient also may decide whether he avails himself of free or private treatment.

4. That Doctors, like other "workers" must be free to choose the form, place and type of work without direction from the Government or other authority.

5. Every registered medical practitioner must be entitled as a right to take part in the service if he so wishes.

6. There must be adequate medical representation on all administrative bodies.

I may mention that the biggest struggle concerned the matter of a full time salaried service since this conflicted with Socialist principles and most will know that the first Act in Britain conflicted with some of these medical demands. The result of the plebiscite, however, led to the acceptance of most of them.

So much for control. Freedom must be preserved and bureaucratic domination avoided as much as is humanly possible.

An almost equally important matter is how much service should the controlling authority provide. Should it be a full service for all irrespective of means? Should it be a full service for some and a partial one for others? Should it be no more than hospital service for some or all? Should treatment or consultation be not entirely free, except for the penniless, so that all, or nearly all, must pay something even though it be no more than a few cents. This is always a healthy deterrent from the overuse of a free service. When all is free the public not only exercise their rights, they actually demand them. The lay press keeps the public informed—many would say, misinformed—about recent advances in medicine and the public is less critical of its knowledge than we are. When all is free they demand what they think is the latest treatment by right. The doctor may be in danger of legal action if he does not accede to the request.

Let me now make one or two points about the British Service and draw certain conclusions from this to enable others who find themselves forced to adopt a subsidized medical service to profit by the British experience.

1. The considered opinion of the profession in England is that if a State service is inevitable then the only equitable basis of remuneration for general practitioners is a capitation fee and for the hospital duties of a consultant by means of a sessional fee. There can be little doubt that the New Zealand system of fee for item of service is grossly extravagant and so readily open to abuse that even the normal honest man has his honesty taxed to the limit.

2. As was to be expected a number of difficulties, grievances and anomalies have arisen when a homogeneous procedure is imposed upon a heterogeneous community. For example, it is abundantly clear that the same method of payment cannot equitably be applied to the small capitation of a widely scattered country practice and the economically sufficient capitation of a densely populated industrial area.

3. As was to be expected the institution of an entirely free service has shown up the deficiencies of hospital accommodation and of facilities, as well as lack of equipment and supplies of apparatus,

material such as X-ray films and the more expensive drugs.

4. Nor do many of the pious hopes contained in the scheme, such as the establishment of health centres or central consulting rooms, seem likely to be more than pious hopes for one or two decades.

5. Furthermore the violent fluctuations in economic values make the worth of any fixed remuneration out of date almost from month to month.

6. A service of this kind is expensive and should depend upon what the country can afford. The cost in England was gravely underestimated. The cost of an entirely free service is fantastic. There is little doubt that the public overuse a free service and do not fully value anything which is entirely free.

7. Nevertheless, the service is working reasonably well and the profession is entering into the service in a good spirit, determined to do all in its power to make it a success. Doctors will endeavour above all things to preserve the humanity of medical practice and avoid regarding the patient as a number in a card-index or a mere vehicle of disease to which rules and regulations must be applied.

Assuming then that there has to be some form of subsidized medical service, what is to be learned from the British experiment.

There are many things, but I first remind you that the British have had a partial State service since 1911, with the National Insurance Act, and that this came to work quite well. I need hardly remind you that in this Continent there is also a vast experiment in progress from which much can be learned. I refer, of course, to the State subsidized Veterans' Service, which provides an experimental field of some 20 million people.

But these points can be learned from Britain:

1. Take matters slowly and not all at one mouthful. This was continuously advocated by the profession in England, but the politician swept the advice aside. We might have extended the National Insurance benefits to higher levels of income in various stages. You might have to examine your Veterans' Organization with a view to extension.

2. Put your hospital services in order first, so that they are adequate to cope with increased work bearing in mind that this involves not only beds but also nurses and domestic workers.

3. Make the service flexible, so that there is latitude to adapt it to widely differing communities—urban and rural—and still provide a reasonable living for all the profession.

4. Do not make the service absolutely free save upon certification of poverty. A few shillings for

spectacles, a few pence for a bottle of medicine, a small charge for hospital maintenance are healthy deterrents from overuse.

5. Keep power out of the hands of lay administrators by demanding and taking an active share in all administrative problems and reduce paper work to the minimum.

6. Leave elbow room for the public to have private service if they so wish. This is an incentive to good work. Other incentives should also be available, such things as extra payment for clinical teaching.

7. Ensure that you have security of tenure and cannot be dismissed at short notice save for grave misdemeanor or gross neglect of duty.

8. See that you have appropriate machinery for the satisfactory settlement of disputes and grievances.

I am a dyed-in-the-wool Conservative of the old British school and all my instincts are opposed to nationalization and State control. I am also of that age and seniority and status which resents interference with the practice of my profession. Yet much of what I have said to you may appear to be socialistic. But I would remind you that my title was a realistic approach to nationalized medicine, and that is the way in which I wish you to regard my remarks. Conservatives are quite prepared to advance with the times and a British Conservative Government, with Churchill at its head, would undoubtedly have imposed some form of national medical service upon us. This because of the realism which I have outlined. If the same measures should be forced upon you because of economics, wars, plague or pestilence, may you learn something from our mistakes.

Bear in mind that a State Medical Service is a political weapon, a plank in a politician's platform, as well as a matter of intimate concern to the medical profession. As a political issue the politician is more conscious of the hundred million votes of the populace than the opinion of a hundred thousand doctors. But the reasonable politician is open to suggestions from the profession as to how best to launch such a Service and how best to obtain the profession's co-operation. My final advice to you therefore is to think on these things, to give time and trouble to preparing your case so that you may present to the politician something constructive which is acceptable to yourselves, and, above all, to prepare your own propaganda machinery in order that your case may be fairly presented to a public which always thinks that the main arguments are about sordid questions of finance.

## GYNECOLOGY

Edited by R. Lyons, B.A., M.R.C.S., L.R.C.P., M.R.C.O.G.

## Endometriosis in Young Women

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It is generally stated that endometriosis occurs during the sexually active period of life, the average age being given variously as 32-35 years. What is not generally appreciated is that the condition can and does occur in much younger women. Crossen and Crossen<sup>3</sup> state that "The development and progress of endometriosis are dependent on the same ovarian hormones that cause the normal menstrual changes in the uterine endometrium. As their initial lesions are minute and their progress slow, it probably takes several years for the process to reach the stage of clinical symptoms." Obviously, if the average age is in the early thirties, there are many below that age; and since the disease develops so slowly, it is even possible that it can exist in an inactive state before the menarche. Whether this is so or not is a moot point, although Clark (*vide infra*) has described such a case occurring in an abnormal uterus. When endometriosis causes symptoms in a young woman, it creates difficulties of diagnosis, some of which are discussed here. That the disease is being recognized more frequently is apparent from the literature; and furthermore it is being recognized more frequently in younger women. Fallon<sup>4</sup> states that endometriosis is seen by him as often as acute appendicitis. In his (Fallon<sup>4</sup>) series of 225 consecutive operations where endometriosis was present, the condition occurred in 9 girls between the ages of 13 and 20 (4%); and Bacon<sup>1</sup> reports a series of 115 consecutive cases in which 12% were under 24. Clark<sup>2</sup> described a case of a girl who at the age of 11 complained of severe and increasing recurring pain in the L.L.Q., 8 months before periods began; and after the menarche she had severe premenstrual dysmenorrhoea for 4-5 days, requiring opiates for its relief. At laparotomy she had a mass of omentum adherent to the left cornu of a bicornuate uterus, and to an area on the posterior surface of the left broad ligament. The ovaries were healthy. Microscopically the lesions were shown to be due to endometriosis. It is well recognized that endometriosis in the rudimentary horn of a bicornuate uterus causes a most severe type of dysmenorrhoea. In this case pain forced pelvic exploration; but how many girls with normal uteri and pre-pubertal or even post-menarchal R.L.Q. pain have their appendices removed through an incision not adequate for pelvic inspection? The appendectomy scar is so common that it is often ignored beyond a few cursory routine questions. How many patients who later have

proven endometriosis have had appendectomies with doubtful pathology? Are they all mesenteric adenitis? Goodall<sup>6</sup> describes several such cases, and Fallon (<sup>4</sup> and <sup>5</sup>) is impressed with this diagnostic problem. In the following five cases several problems of diagnosis and treatment present themselves.

## Case Reports

I. B. K., age 28, single, first seen on April 23, 1949. Menarche 17. In 1945, when 23, and after 3 years of severe dysmenorrhoea, had a laparotomy, when a "large chocolate cyst" of the right ovary was resected. On microscopic examination no definite evidence of endometriosis was found, and it was reported as "chocolate cyst."

This operation did not give relief; and she had another operation one year later, when she was found to have another "chocolate cyst," this time of the left ovary, which was removed. She still suffered from dysmenorrhoea, and visited the Mayo Clinic in January, 1948. Operation was advised but rejected because of fear of an early menopause. However, the pain became so intense that she suffered severe mental strain in apprehension of her next bout. Demerol and methadon made her violently ill; other analgesics were useless; and morphine was never used. When first seen in April, immediately premenstrually, the uterus was normal, the left fornix was apparently clear, and there was a large soft very tender mass about 1½ inches in diameter in the right side. Her most intense pain, however, was in the left side. She was given metandren linguets mgms. XX for ten days, then 10 mgms. daily for the entire cycle except during the actual flow. The May, June and July periods were tolerable. She went on holiday early in July and forgot her pills. On August 3rd she began an extremely painful period. On August 15th laparotomy was performed. The right ovary was about 2 inches in diameter, with several chocolate cysts, and mucinous degeneration. It was removed. Buried in the left broad ligament was a piece of solid tissue about 3 mm. in diameter; this was removed. On microscopic examination, the right ovary showed chocolate cysts, endometriosis, and mucoid degeneration of ovarian parenchyma. The piece of tissue from the left broad ligament was a piece of ovarian tissue containing endometriosis. She has been given a few estrogen withdrawal cycles for the psychological effect; these have been painless.

II. R. E. H., age 23, married, first seen on March 31st, 1949, complaining of dysmenorrhoea. Menarche 16, always had mild pre-menstrual and menstrual dysmenorrhoea all over the lower abdomen.

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Cycle regular, 4/28. Appendectomy age 17, with no relief of symptoms. No other significant history. On March 20th, 1949, her period began at the expected time, and was normal in amount and duration; but was accompanied by fairly severe pain in both lower quadrants, and pain on voiding. Pelvic examination was negative except for some irregular thickening on the left side, with tenderness. The following five periods were normal in rhythm, amount and duration, but were accompanied by gradually increasing pain. Laparotomy on September 16th, 1949, revealed a number of "blueberry nodules" on the peritoneum of the left side of the uterovesical pouch; these were resected. There were more of the same deep in the pouch of Douglas and mainly on the left side; these were also removed. Microscopic sections failed to confirm the diagnosis. Periods have been without pain since that time and pregnancy has been advised.

III. S. K., age 22. Menarche 14. Cycle regular 5/28. First seen July 21st, 1949. For the previous year, since her marriage, she had had increasingly heavy periods; and with increasing, but still slight dysmenorrhoea. This pain was in both iliac fossae, principally the right; this pain in the right side also came in attacks not related to her periods. There was occasional deep dyspareunia. On examination the positive findings were some tenderness and muscle guarding in the R.L.Q., with 3° retroversion of the uterus, which appeared to be fixed.

The white blood count and sedimentation rates were normal. She was treated expectantly for a time, but with no relief, and on October 13th, 1949, laparotomy was performed. There were several small reddish-blue spots on the peritoneum of the pouch of Douglas, mainly on the posterior aspect of the cervix; with some puckering of the peritoneum around a few of them. These were resected. The ovaries appeared healthy. A modified Gilliam suspension was done, and a healthy appendix removed. Microscopically, these small areas were endometriosis. She has had relief of all her symptoms.

IV. E. T., age 19, single, first seen on July 6th, 1949, complaining of dysmenorrhoea. Menarche 15; and had severe lower abdominal pre-menstrual pain ever since her first period. Appendectomy about six months later failed to relieve her symptoms. Dysmenorrhoea had been about the same since onset; not progressively worse. The pain began 2-3 days before, "like gas pains"; and when the bleeding started she had very severe suprapubic cramps, lasting about 10 seconds, and about 4-5 minutes apart. There was also a steadier aching of the left side which was overshadowed by the intensity of the crampy pains. On examination there were no positive findings except a fairly

small anteverted and anteflexed uterus. She was advised to do some exercises, especially outdoor ones, and mild analgesics were prescribed. There was no improvement, and even fairly large doses of codeine were not sufficient to relieve her pain. She was twice given courses of ethenyl estradiol but the ensuing periods were the same as ever. On repeat examination on the first day of her period, the right uterosacral ligament was tense and painful, and the possibility of P.I.D. was considered. The pulse, temperature, sedimentation rate and white blood count were normal; but as she was single, and her introitus almost parous, she was given a short course of depo penicillin and trulfa. There was no change. Laparotomy was performed on November 4th, 1949, and two small plaques of endometriosis were found on the posterior surface of the left broad ligament. Presacral sympathectomy was performed, as it was felt this was a combined primary dysmenorrhoea plus endometriosis pain. Her two periods since operation were only slightly painful, consisting of moderate discomfort in the left side. There was no definite endometriosis microscopically.

V. E. C., age 19, married. Menarche 16. First seen on October 20th, 1949. In September, 1948, while still single, had an attack of sudden severe pain in the right side, with collapse. Emergency laparotomy showed a ruptured chocolate cyst of the right ovary. Microscopic sections were not made. Since that time she has had increasing dysmenorrhoea plus bouts of intermenstrual pain, mainly on the left side. On examination, she has a tender, firm, 1½-inch swelling in the left adnexa. She has been advised to become pregnant if possible.

### Discussion

In these five cases, endometriosis was found at the ages of 28, 23, 22, 19 and 19, initial symptoms occurring at the ages of 20, 23, 21, 15 and 18, respectively. In only two was the diagnosis proven microscopically, but pathologists agree that it is not always possible to make a definite diagnosis. Goodall states that in only 1/3 of cases where clinically and grossly there is undoubtedly endometriosis, will the pathologist find evidence of endometriosis. Similarly it is notoriously difficult and often impossible to recognize clinically. Two of these girls had had appendectomies performed via a small lateral incision. It is suggested that had an adequate incision been made so that the pelvis could have been inspected, the condition may have been recognized much earlier. In this respect, case No. 3 may well have had only an appendectomy if her pelvis had not been carefully inspected. Treatment is unsatisfactory, but it is generally stated that pregnancy at least arrests the progress of the disease; whereas endometriosis,

if unchecked, is said to result in sterility. Having made an early diagnosis, one is in a better position to give suitable advice.

### Summary

(1) Five cases of endometriosis in young nulliparous women have been presented.

(2) Two of these girls had had appendectomies with no relief of symptoms, and in one other case the appendix was suspect.

(3) It is suggested that in doubtful cases of recurrent appendicitis in young women, where

operation is indicated, an incision which will allow thorough inspection of the pelvis should be made.

(4) The proper advice to give these people would seem to be early pregnancy.

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## MEDICINE

### Management of Hemiplegia

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The care of older people is fact becoming a major problem in Medicine, Antibiotics, surgical improvements, better diagnostic methods have placed our expectant age at a much higher figure than formerly.

With our gradually increasing numbers of older people the problems of geriatric medicine become more challenging. One of the common problems one sees in treating older people is hemiplegia. The association of degenerative, or hypertensive cardio-vascular disease with cerebro-vascular accidents has long been known and we should expect that this syndrome will increase rather than diminish with the passage of time.

In the past the elderly patient with a stroke was bedridden, died frequently of pneumonia, bladder infection, or became a hopeless invalid for some months until some intercurrent infection ended his almost intolerable existence. Now, however, with improved methods of controlling infection, life expectancy has been increased. How then must we manage the patient who has suffered a stroke?

Before going further, let us remember that although hemiplegia is predominantly due to cerebro vascular disease, any lesion which interrupts the cortico spinal pathways may produce this syndrome. It devolves upon the physician who is called to see the patient to ascertain if any of the other causes of hemiplegia might be a factor in each individual case.

Having once decided this and instituted treatment on etiological lines the physician's responsibility is one of aiding and assisting in as rapid and complete a recovery as possible. For purposes of discussion the treatment may be divided into four phases.

TABLE I  
Causes of Hemiplegia

Congenital or Infantile Inflammatory	Infantile Hemiplegia Birth Injury, etc. Meningitis Brain Abscess Encephalitis
Vascular	Arteriosclerosis Hypertension Syphilis Others
Traumatic	Hemorrhages Sub-dural Hematoma Depressed Fracture
Neoplastic	Tumors of all types

### The Acute Phase

This is the first 24-48 hours after the accident. Patient may be comatose or if conscious, is often extremely emotional or confused. He is frequently incontinent, restless, has a flaccid paralysis of the area involved. The problem here is supportive. At this stage a history should be obtained from relatives as to onset of disorder, etc, and a good examination made. Etiology must be brought to light if possible. Bladder must be watched and catheterization instituted if necessary. Food is unnecessary and even fluid may be withheld with little danger unless obvious symptoms of dehydration are present.

Cerebral edema is an early accompaniment regardless of cause and some dehydration is considered helpful by many authors in controlling this problem.

Lumbar puncture should be done routinely as a diagnostic procedure. Reduction of pressure is, of course, a matter of individual judgment.

Spinal fluid must be examined for blood, xanthochromia and also serological testing as a

help in delineating the etiology. The fluid should be centrifuged if blood is present within one hour to be sure that it represents a true, hemorrhage rather than a bloody tap. In true hemorrhage xanthochromia will be present in centrifuged fluid.

Oxygen therapy is of value if the patient is deeply comatose to prevent further anoxia and possible permanent damage or even death from peripheral vascular or respiratory failure.

In cases of obvious thrombosis heparinization followed by dicumarol is considered by many authors to be valuable. This matter is still controversial as some authors believe the weakened vascular structure in softened areas is very liable to produce hemorrhage and anticoagulants should not be used. Sufficient numbers of controlled studies have not been done to settle this point.

Attention should be paid in this phase to general nursing care and particularly care of the skin and cleanliness of the patient. Several important points are, of course, obvious:

(1) Urinalysis often reveals sugar and albumin following cerebral damage. These must not be confused with diabetic coma or acidosis where acetone is always present or renal damage where other signs of renal failure are usually evident.

(2) Hypertension may be present partly as a result of increased intracranial pressure. Frequent observation of Blood Pressure and particularly after reduction of pressure by dehydration, L.P., or intravenous hypertonic solution will usually clarify this point.

(3) The problem of trauma may be difficult to rule out but skull films are helpful and an accurate history from relatives or friends can usually be obtained.

(4) Aphasia may be present as a result of the lesion and is often mistaken for confusion. A careful examination plus the use of a standard aphasia test is helpful on this point.

There are, of course, many others.

#### **2nd Phase—Early Recovery Phase—4-6 Weeks**

In this phase the patient becomes clearer mentally, and usually begins to regain control over bladder and bowels. The weakness is still flaccid and although reflexes may be active, the typical spasticity is not in evidence. At this point and during this phase the two most important therapies begin: Physiotherapy and Psychotherapy.

Physiotherapy consisting of passive movement and encouragement to active movement of all paralyzed muscle groups should begin as soon as possible to obtain maximum effect. Attention should be paid to retraining the patient in his urinary and bowel functions. The problem of feeding should be handled by having the patient do as much for himself as possible. Ambulation with help should be tried as early as possible even if the lower limb is badly affected. The earlier

this is instituted the more recovery can be expected.

Physiotherapy in this stage, however, does not require expensive equipment or trained physiotherapists, although these are helpful. All that is required is to think of some activity which teaches and re-educates the paralyzed part toward a more normal function. For this purpose we have been using a method of progress analysis put forward by Dinken which stresses function and not individual muscles. A good deal of attention must be paid to so-called social re-education that is, teaching the patient to care for his own bodily needs without too much handicap.

Psychotherapy should be a concomitant part of the foregoing. A cheerful attitude on the part of all who care for the patient must be maintained. Encouragement and optimism as to outcome are essential. The visit of the doctor is important and must not be neglected. Relief of the patient from fear of handicaps, home worries, economic difficulties, etc., is an integral part of treatment. Education of relatives is also essential and they should be interviewed and the patient's problems discussed closely with them.

#### **3rd Phase—Late Recovery—18 Months**

This is the phase of spasticity in which the disability is twofold—weakness and hypertonicity. Therapy here is directed toward relief of spasm, muscle strengthening and re-education. Here again physiotherapy is important. Various agents for relaxing muscles are used, Hubbard Baths, Whirlpool Baths, Massage, Heat, Exercises, etc., all have their place. Particular attention should be paid to the use of small hand muscles and finger and thumb opposition. Occupational Therapy here serves a twofold purpose giving exercise to muscles and showing the patient that he can produce something worthwhile even with his disability.

What is most important is the retraining of the patient toward a resumption of his previous abilities, employability and job training must be considered and therapy directed toward this end.

Speech therapy in aphasia should commence early in the 2nd phase if possible. A good speech therapist can work wonders with this disorder.

#### **The Final Phase**

This is one of residual weakness. This is a problem for re-education and reduction of spasticity but the results are strictly limited. Primarily it consists of accustoming the patient to live with his disability in happiness, and tolerance and to maintain a social living standard comparable with his prior existence.

#### **Drugs**

(1) **Sedation**—restlessness and sleeplessness are common symptoms requiring some form of treatment.

(a) **Barbiturates** are often misused and the oft resulting lethargy in daytime is poor. Often cerebral detoxification if one can use this word here, is impaired by damage and consequently a small dose may have a prolonged action.

**Note:** Phenobarb in small doses is most useful in arterio-sclerotic patients to reduce anxiety and tension.

(b) **Bromides** produce toxic symptoms all too often in older people.

(c) **Chloral** is a good safe sedative all too often forgotten which can be used readily particularly as h.s. sedation.

(d) **Paraldehyde** in comatose patients by rectum is often of value to control restlessness.

(e) **Narcotics** should not be used early in the disease as they may cloud diagnostic signs. Later they are not necessary and can be superseded by other more effective drugs.

(2) **Antispasmodics:**

(a) **Curare**—This drug has had some use when given in oil but in most hemiplegias was not found particularly valuable. However, further reports are expected as the drug becomes more widely used in this field. Our experience is that of very limited value.

(b) **Belladonna** alkaloids are still used in many places, but in the majority of cases side effects are more troublesome than relief of spasm warrants. In most cases relief is much less with this than in continued home physiotherapy.

(c) **Quinine** is often forgotten but can be very helpful as an antispasmodic in severe spasm.

(d) **Prostigmine** has been tried and is now considered of little use in this condition.

(e) **Myanesin**—Clinical trials are now being conducted, but results are as yet equivocal and no definite information is available.

(3) **Vitamins:** Sufficient evidence has been produced now to show that Vitamin B complex may hasten the recovery phase of hemiplegia. This does not produce any **more** recovery but shortens the time interval between accident and full recovery. Given in liquid form in alcohol it acts also as an appetizer and is now considered by most authors as a beneficial therapy.

(4) **Diet:** No specific diet is necessary. A well-balanced appetizing meal easy for the patient to handle is useful. We advise a smooth type diet as it is easy to handle. Later this is changed to an ordinary diet as the patient becomes better able to manage utensils. Care in preventing obesity is necessary due to reduced activity.

In conclusion, it is wise to remember that the problem of hemiplegia is one of prolonged dis-

ability and that we as physicians have a responsibility towards the patient to give him as much useful activity and happiness as enlightened knowledge will allow. He will respond as one of the most grateful of patients, and our time is well-rewarded by the feeling of having returned him as a useful member of society.

## ANAESTHESIOLOGY

Edited by R. G. Whitehead, M.D.

### Notice of Meeting

The Manitoba Division of the Canadian Anaesthetists' Society will be the host to the other Western Divisions for their annual meeting to be held in Winnipeg on the 23rd, 24th and 25th of March. This will be the fifth meeting of western anaesthetists. The Manitoba Division held the first meeting in Winnipeg in the spring of 1946 and subsequent meetings were held in Edmonton in 1947, Regina in 1948, and Vancouver in 1949. Each and every meeting has been a distinct success from a clinical standpoint as well as a social get-together and the coming meeting promises to be equal in every way to the previous meetings.

Doctor Robert D. Dripps of the Department of Anaesthesia, University of Pennsylvania Hospital, so well known to all Anaesthetists for his reports on "cyclopropane shock" and numerous other clinical and research problems, will present three or four papers on current research in relation to anaesthesia, obstetrical anaesthesia and other topics.

Doctor R. A. Gordon, the Secretary-Treasurer of the Canadian Anaesthetists' Society, will present a paper on Block Anaesthesia.

Doctor J. Doupe, Professor of Physiology of the University of Manitoba Medical College and head of the Department of Research of the Winnipeg General Hospital, and Doctor J. Gemmell of the same Department will discuss some of their research projects.

Doctor L. Cherniak of the Department of Medicine of the Winnipeg Clinic, will speak on the subject of chest disease.

A round-table discussion and a variety of talks on anaesthetic problems and techniques are also included in the programme.

All in all a well-rounded, clinical, research and social programme is planned to entertain members of the Canadian Anaesthetists' Society and others interested in Anaesthesia who would care to attend these meetings.

## CASE HISTORIES

### Carcinoma of Caecum

#### Mikulicz — ileo-transverse colostomy

S. S. Peikoff, M.D., F.R.C.S. (Ed.),  
F.R.C.S. (C), F.A.C.S.

*This is the second of a series of Case Histories which will appear in the Review each month. The purpose of these publications is not to present rare or unusual cases but rather to consider the routine management of common surgical conditions.*

Case No. 45-12,635, Mrs. J. P., St. Boniface Hospital. Color, white. Age, 65 years. Occupation, housewife. Date of admission, September 23, 1945. Date of operation, October 2, 1945; October 26, 1945. Date of discharge, November 6, 1945.

#### Complaint on Admission

1. Pain in "pit of stomach," 12 years. 2. Pain in right side of abdomen, 1 year. 3. Loss of appetite and progressive weakness, 8 months. 4. Loss of weight (24 pounds), past 6 months.

#### Present Illness

About 12 years ago (1933) patient began to suffer from "stomach trouble." Complained of pains in epigastrium coming on at any time and not relieved by food; sometimes aggravated by fatty foods and pickles. The discomfort was more or less continuous; with flatulence, and distension particularly after meals. On several occasions had severe bouts of dyspepsia with pain retrosternally and radiating to the back, lasting from ½ hour to 1 hour.

In 1935 she had her gall bladder and appendix removed but her symptoms were not relieved by the operation.

In 1941 she went to Winnipeg General Hospital as out-patient on account of dyspepsia; an X-ray of her stomach revealed a duodenal ulcer, and she was placed on an ulcer regime.

In February, 1945, she again consulted a doctor. She felt that she could not do a day's work, had a poor appetite, and became progressively weaker and more tired, especially after doing her housework. Her hemoglobin was taken and she was given an "iron tonic" and liver injections. She had improved for about one month, but the pain was now becoming more steady in the right side of her abdomen. She was becoming more constipated and always felt better after a laxative, especially when her bowels moved.

She was gradually becoming paler, and was tired continually; had "absolutely no energy." On three occasions she had diarrhoea for 2 or 3 days at a time; 4 or 5 loose liquid stools; and only after close questioning admitted that the stools were of black color. She lost her appetite almost com-

pletely; began to lose weight and finally became so weak that she was forced to take to bed where she spent the past month. She noticed that she developed a lump on the right side, which was becoming larger.

#### Inventory by Systems

Eyes—Vision poor. Wears glasses but vision blurred. Occasionally sees double.

Ears—Hearing good, but has tinnitus frequently. Occasional dizzy spells when getting out of bed. Throat—No sore throats. Mouth dry. "Funny feeling in tongue"—burning sensation.

Respiratory—Does not get colds. No cough, expectoration, or haemoptysis. Gets very short of breath on least exertion.

Cardio-vascular—Dyspnoea even on resting, since spring of 1945. Retrosternal pain. Frequent attacks of palpitations.

Gastro intestinal—See above. No history of jaundice.

Genito-urinary—No frequency or nocturia. No pain on micturition. No haematuria.

Menstrual—Menarche at 13 years of age. periods always regular, interval 28 days. Duration 3-4 days, with moderate flow. Menopause at 49 years of age. No post-menopausal discharge or bleeding. No hot flushes.

Obstetrical—Had 4 children; 2 stillbirths (spontaneous labor). 2 children, 9 and 10 years of age respectively, died during influenza epidemic (1918).

Nervous system—Too tired to sleep. No irritability. Frequent occipital headaches. Depressed.

Musculo-skeletal—Extreme weakness in both limbs. Pains and aches all over body. No disturbance of gait. Occasional tingling and numbness of both legs and cramps in calves.

Metabolic—Pyrexia on admission. Temperature 100° F. Loss of weight marked in past 6 months (from 146 pounds to 122 pounds). Profuse night sweats. Hands and feet always feel cold.

#### Past History

Usual childhood illness.

Haemorrhoidectomy, 1918.

Cholecystectomy and appendectomy, 1935.

Treated for duodenal ulcer, 1941.

Treated for anaemia, 1945.

No accidents.

#### Family History

Her family lives in Europe and she has no knowledge of them.

Husband—alive and well—tinsmith.

#### Physical Examination

Grey haired, tired and very pale looking woman, lying in bed appearing very depressed and discouraged.

**Head and Neck:**

Cranial nerves—Intact.

Eyes—Lids very pale; pupils normal size and react to light and accommodation. Ocular fundi very pale.

Ears—Normal except for wax in right canal.

Nose—No obstruction.

Lips and gums—Show marked pallor.

Tongue—Dry, glazed, beefy red. No ulceration.

Teeth—False.

Tonsils—Small, buried.

Neck—Thyroid gland not palpable. No Virchow glands palpable. No distended veins.

Face—Waxy appearance and slight malar flush.

**Chest:**

Heart—Normal in size. Apex in 5th interspace. 3½ inches from midline. Heart sounds somewhat weak, but regular. 100 beats per minute. Soft systolic murmur at apex—functional. Blood pressure 122/70.

Lungs—Chest normal contour. Movements equal and symmetrical. Tactile fremitus good. No dullness on percussion. Breath sounds normal. No adventitious sounds.

Mammæ—Small, shrunken atrophic breasts. Nipples and areolæ normal. No discharge or retraction of nipple. No masses felt. No evidence of chronic mastitis.

Abdomen—Normal movements on respiration. Slight generalized fullness of abdomen. A swelling can be seen in right lower quadrant with some vertical excursion with each respiration. Generalized tenderness over entire abdomen, particularly over mass in R. L.Q. There is a hard, somewhat nodular, tender mass about size of a large grapefruit in the R.L.Q. The edges seem to fade posteriorly. The mass can be moved up and down, and from side to side. Liver and spleen are not palpable. Intestinal sounds normal. Reflexes present and equal.

Vaginal examination—Uterus small, freely movable. No masses felt in pelvis. Ovaries not palpable. Cervix small and pale.

Rectal examination—Dark black tarry stain around anus. Markedly protruding mixed hæmorrhoids. No masses felt on digital examination.

Spine—Normal curvatures. Normal movements. No tenderness on percussion. No bed sores.

**Extremities:**

Upper—No wasting. No clubbing of fingers. Marked pallor of hands. No deformities.

Reflexes:	Right	Left
Biceps .....	††	††
Triceps .....	††	††
Supinator .....	†	†

Lower—Cold to feel. No deformities, No wasting. Moderate varicosities left leg. Some pitting oedema over ankles and over tibiae to a lesser extent. Pulsations in dorsalis pedis and post

tibial good. Vibration sense good. No ulcers. No changes in sensation.

Reflexes:	Right	Left
Knee .....	††	††
Ankle .....	††	††
Plantar .....	V	V

**Clinical Laboratory**

Urinalysis—September 24, 1945. Color, straw, turbid. Reaction, acid. Specific gravity, 1.028. Albumin, 0. Sugar, 0. Microscopic, 12-15 pus cells and occasional red cells per high power field.

Stools—September 24, 1945. Stools for occult blood. Black tarry stool. Blood†††††.

Blood—September 24, 1945. Red blood cells. 4,430,000. Hemoglobin, 60%. Color Index, .70. Poikilocytosis, present. Macrocytosis, present. Microcytes, present. Differential leucocytes: White cells, 13,700. Polymorphonuclear Neutrophils, 83%; Polymorphonuclear Eosinophiles, 2%. Small and large lymphocytes, 13%. Monocytes, 2%.

Wassermann—September 26, 1945. Wassermann report, negative.

Gastric Analysis—September 27, 1945.

	Free Hcl.	Total Acidity
1 .....	0	10
2 .....	0	12
3 .....	0	18
4 .....	6	28
5 .....	8	10
6 .....	10	12

Blood, negative.

Blood—October 1, 1945. Red bloods cells, 4,280,000. Hemoglobin, 74%. Color Index, .82. Poikilocytosis, definite. Macrocytosis, mild. Microcytes, mild.

Roentgenological Findings—September 28, 1945. An opaque enema filled only as far as the ascending colon. The caecum could not be visualized, and there appears to be a large filling defect in this region. This is probably a new growth. (Dr. H. M. Edmison).

October 1, 1945. Plain film was made of the kidney, ureter and bladder areas. Kidneys are normal in size and position. No shadow is seen to suggest a calculus. Films were made at 5, 15, and 20 minutes after the intravenous injection of diodrast. Both sides are fairly well visualized, and no gross change can be seen. (Dr. H. M. Edmison).

October 1, 1945. Fluoroscopic examination of chest. Diaphragms are normal. Heart and great vessel shadows are normal. Lung fields are clear. (Dr. H. M. Edmison).

**Pre-operative Diagnosis:**

1. Carcinoma of caecum.
2. Hyperplastic tuberculosis of caecum.
3. Regional Ileitis.
4. Actinomycosis of caecum.

### Indications for Operation

A large hard growing mass in right lower quadrant of the abdomen, gastric disturbances, and roentgenologic evidence of a filling defect in the caecum, with anaemia and melaena demand exploration with the object of resection.

### Pre-operative Care

The patient was in a state of poor nutrition and hydration, along with moderate secondary anaemia, with a depressed and discouraged mental outlook.

Blood proteins were not being done in the Laboratory of St. Boniface Hospital at this time.

Blood transfusions 1500 cc. Glucose and saline intravenously. Ferrous sulphate gr. x t.i.d. Phenobarb as a sedative. Enemas as required. Sulfasuccidine gr. xxx OH iv. Intake and output estimated daily. High calorie, high protein, high carbohydrate, low residue diet. Vitamin B. Vitamin C, 500 mg. daily. Multicebrin t.i.d.

Twenty-four hours before operation:

1. Gastric suction.
2. Mild laxative—liq. pet. and cascara.
3. Enema and colonic irrigation.

### Detailed Description of Operative Technique and Operative Findings

Position—Supine. Painted with merthiolate. Draped.

Incision—Long right paramedian incision extending from costal margin to 2 inches below umbilicus. Skin towels.

Exploration—Since the site of pathology was known to be in the right lower quadrant, exploration of this area was left to the last. Her history suggested a duodenal ulcer; the greater and lesser curvature of the stomach and the cardia were palpated carefully as well as the duodenum, but there was no evidence of an ulcer being present, or any scarring on the peritoneum. Pancreas was normal; the gall bladder was absent from its bed; the left colon was examined but there was no evidence of pathology. The uterus was normal in size and the adnexa normal. In the right lower quadrant, one could feel a mass the size of a grapefruit in the region of the caecum. The omentum was adherent to the anterior abdominal wall as well as to the caecum in this area. When this was peeled off and the caecum mobilized it was evident that it contained a large, irregular, hard mass. Upon invaginating the anterior wall, one could feel a large hard crater with definite rounded edges, giving one the impression of a malignant ulcer. The adjacent glands were not involved. Resection of the right colon with a one-stage ileocolostomy was decided upon. The patient was placed in a Trendelenburg position with the right side of the table tilted upward on its long axis. The small intestines were packed off to the left. The right colon was then covered with a moist sponge

and pulled over to the left, while the right edge of the wound was retracted well to the right. The parietal peritoneum on the lateral side of the caecum and ascending colon was incised and the incision continued around the hepatic flexure. By wiping the colon with its mesentery medially, it was possible to mobilize the entire ascending colon and hepatic flexure until it was suspended freely from its mesentery.

The peritoneal incision was continued downward around the caecum. Here, however, separation of the caecum from the posterior abdominal wall was somewhat difficult, and at one point the wall showed a pin-point perforation and some oozing of caecal contents.

This opening was quickly purse-stringed and wrapped in a mackintosh to prevent spilling. The entire right colon was then further mobilized medially, at the same time identifying the ovarian artery and ureter. The ureter, adherent to the peritoneum, was wiped off. The ascending colon and hepatic flexure were next separated from the retroperitoneal duodenum.

The ileum was picked up, about 6 inches from the caecum, and its mesentery was ligated at the root. The ligation of the root of the mesentery was continued upward along the ascending colon and hepatic flexure, and up to and including that of the lateral third of the transverse colon. Originally a one-stage hemicolectomy with ileo-transverse colostomy was planned, but in view of the chronic debility of the patient and the presence of a small perforation, it was decided that a Mikulicz type of resection between the ileum and the transverse colon (according to Lahey) would be the safer operation.

The entire mobilized colon and ileum were delivered outside of the abdominal cavity and well packed off. Two clamps were applied to the ileum which was transected with the cautery. Two clamps were applied to the lateral part of the transverse colon which was transected with the cautery.

The portion of bowel containing the malignancy was now removed. The ileum was now apposed to the transverse colon in such a way that the opening of the ileum projected about 4 inches beyond that of the transverse colon. The mesentery of this projecting portion of the ileum was dissected off. (This portion later projects beyond the skin and is used as an enterostomy tube). The edges of the remaining mesentery were stitched together, so as to close the rent completely.

The anti-mesenteric border of the ileum was tacked to a longitudinal band of transverse colon for a distance of 6-7 inches, thus creating a double barrel with a spur of 6-7 inches.

The double barreled ileum and transverse colon were brought out of the wound, with the ileum now projecting 4 inches beyond the skin level.

The wound was closed in layers with chromic catgut No. 1 around the colostomy. No sutures were placed between bowel wall and peritoneum. The wound was dressed with vaseline gauze and pads. The clamp on the transverse colon stoma was left intact and incorporated in the dressing. The clamp on the ileum was removed and a glass tube with rubber tubing tied into the ileum and attached later to a drainage bottle beside the bed. This established immediate decompression. Dressing applied.

#### Anaesthetic

Pre-medication—Morphine gr. 1/6 with Atropine gr. 1/150.

Condition of Patient — Temperature 97° F. Pulse 76. Respiration 22. Blood pressure 122/68. Agents—Spinal, metycaine 150 mgms. in 3½ cc. spinal fluid.

Stimulants—Neosynephrine. Ephedrine.

Comments — Anaesthesia satisfactory. Blood transfusion during operation 500 cc. Post-operative condition good. No haemorrhage.

#### Gross and Microscopic Description of Tissues Removed

Gross—Encircling half the circumference of the caecum there is an ulcerating lesion measuring approximately 2 inches by 1 inch, having raised rolled edges and having the appearance of a malignant process. No glands grossly involved.

Microscopic—Grade ii adenocarcinoma, which has penetrated to serosa in many areas. No glands.

#### Final Diagnosis

Adenocarcinoma of caecum—grade ii.

#### Progress Notes Including Post-operative Care During Stay in Hospital

Oct. 2, 1945—Immediate post-operative condition of patient was fair. Pulse 108. Respiration 28. Blood pressure 140/80. Blood transfusion 500 cc. and glucose 5% with saline 1500 cc started immediately. Adrenalin m. 7 OH iv. for five doses. Penicillin 30,000 units OH iv. Gastric suction established. Sodium sulfadiazine 5 gm. with the intravenous. Vitamin C and D daily. Rectal tube p.r.n. for discomfort. Morphine grs. ¼ for restlessness.

October 5, 1945—Condition of patient satisfactory. Enterostomy tube irrigated with saline. Drip method of fluids administered by way of the tube.

October 7, 1945—The portion of the ileum minus its mesentery projecting beyond the skin level has now sloughed off, and the two openings of the Mikulicz double-barrel colostomy are now at the same level. The clamp on the large bowel was

removed, a long specially designed spur-crushing clamp with a graduated screw adjustment was now introduced for a distance of about 5 inches with one limb of the clamp into each opening. The screw was adjusted tightly to the spur and left in place.

October 8, 1945—Tightened screw still further.

October 12, 1945—Spur clamp lying free in the bowel. Finger inserted to explore the depth of the crushed spur, which was found to be satisfactory, since no bridge could be felt at 4 inches. Stitches removed.

October 26, 1945—Closing of colostomy. (Usual wait—2 months, but no evidence of induration). Under low spinal anaesthetic (metycaine). An oval incision around the colostomy opening down to the fascia was made and the fascia and muscle partly dissected off the colostomy. The edge of the colostomy opening was trimmed off. The cuff of the colostomy was closed by an in, out and over stitch of chromic catgut reinforced by several interrupted sutures of fine silk. The fascia and muscles were then stitched over without tension. A small Penrose was inserted at each end of the wound and interrupted sutures closed the skin.

November 2, 1945—Removed stitches.

November 6, 1945—Discharged from hospital.

#### Condition on Discharge

Condition good. Wound completely healed. No discharge. No fistula. Complained of some tenderness in the region of the incision. She felt that she was much improved. Appetite good. Bowels regular. No diarrhoea. Was gaining in strength.

#### Follow-up Notes Since Leaving Hospital

January 10, 1946—Patient came to the office for check-up. Has gained 12 pounds in weight. Appetite good. Hemoglobin 82%. Bowels regular. Beginning to do some work around the house.

March 14, 1946—Presented at Tumor Clinic, St. Boniface Hospital. Condition of patient is good. There is a hernia the size of an orange in the region of the incision. Otherwise patient feels good. No complaints.

April 1, 1946—Incisional hernia repaired.

February 20, 1948—Presented at Tumor Clinic, St. Boniface Hospital. Patient in good condition. Hemoglobin 85%. Has been doing her own housework. Has no complaints. Appetite good.

February, 1949—Presented at Tumor Clinic, St. Boniface Hospital, progress satisfactory.

January 10, 1950—No complaints. Hb 8570. Appetite good. Bowels regular. Nutrition, normal.

## RADIOLOGY

### The Value of the Plain Abdominal Roentgenogram

F. G. Stuart, M.D.

X-ray Department, St. Boniface Hospital

The case histories of a number of patients having this examination recently at St. Boniface Hospital were reviewed. This was undertaken with a view to determining why it was being used and what significant information was being obtained.

The features upon which radiological interpretations were based will first be discussed. An analysis of the significance of these features in abdominal diagnosis will then follow.

The shadows seen on abdominal roentgenograms may be divided into four categories:

1. Radio-opaque calcific shadows.
2. Radiolucent gaseous shadows.
3. Soft tissue shadows.
4. Opaque foreign bodies.

This division is based on the fact that the degree of contrast between the radiographic densities of abdominal viscera is very narrow and is situated at about the centre of the density scale.

This is a complete reversal of the situation that prevails in the thorax where contrast between adjacent organs is quite marked.

It becomes quite apparent then, that any shadow, the density of which places it at either end of the contrast scale will be obvious on the abdominal roentgenogram. Hence the prominence of opaque calcific and translucent gaseous shadows. On the other hand, changes in the viscera which are within the normal range of density can only be detected, if at all, by very careful inspection.

Opaque foreign bodies, of course, are generally quite obvious and will not be further discussed.

It is worth mentioning that the technical conditions for the examination should be carefully controlled in order to obtain the maximum radiographic result. In all our cases the examination was done in either the prone or supine position, sometimes both. In a few cases an additional film in the erect or left lateral decubitus position was made. In some instances the colon had been cleaned out but in many others there was no preparation.

The following are the features upon which radiological interpretation is based.

#### Calcific Opacities

Pathologically opaque calculi of the biliary and urinary tracts are the most important items in this category. See fig. 1.

Opaque biliary calculi are represented by shadows in the R.U.Q. which vary considerably in

size and density. They tend to be laminated, rather than homogeneous. If single they are often round or oval and if multiple are angular and faceted.

Urinary calculi are generally much denser but also vary much in size. Their situation in the kidney, ureter, bladder or prostate gland can generally be accurately determined from their position on the film.

Occasionally the differentiation between renal and biliary calculi is uncertain from a single film. Turning the patient over and making a film in the opposite direction will be of assistance because of the resulting difference in detail and density of the shadow on the two films. Biliary calculi are better defined on the P.A. film and renal on the A.P. A lateral film will, of course, show the antero posterior level directly. Pancreatic calculi are rare and are seen arranged transversely at about the level of the second lumbar vertebra.

Many other types of calcification are often seen on the abdominal film. Most of these are important only because they must be differentiated from biliary and renal calculi.

Calcification of the costal cartilages may be confused with biliary or renal calculi. It is generally distributed in an oblique direction and is predominantly linear rather than round. See fig. 2.

Calcified mesenteric lymph nodes may be confused with renal or ureteric calculi. They are differentiated by their irregular outline and "cluster" grouping. Further differentiation is based on their change of situation when the patient's position is reversed or abdominal compression is applied and another film made.

Phleboliths in the pelvic veins are also a frequent cause of annoyance and sometimes they cannot be differentiated from ureteral calculi without careful visualization of the ureters. Calcification in the iliac arteries infrequently gives rise to the same confusion.

When calcified, fecaliths in the appendix may be difficult to differentiate from ureteral calculi if the appendix extends towards the mid-line.

Calcified hydatid cysts are occasionally seen in the liver. See fig. 3.

Small calcific deposits, of either inflammatory or thrombotic origin are often encountered in the liver and spleen and are generally not significant.

Calcification is sometimes seen in the splenic artery in the left upper quadrant.

Calcification of the adrenal glands is infrequently noted and usually signifies a tuberculous lesion.

Calcification in uterine myomata is quite common. Occasionally an ovarian tumor is calcified.

Calcification of the gall bladder is unusual.

### Gaseous Shadows

In marked contrast to the calcific capacities are the gaseous shadows. These lie at the other end of the radiographic density scale. Like the calcific opacities they are also readily visible on the abdominal roentgenogram.

Normally gas may be visible to some extent in the stomach, terminal ileum and colon. According to Wangansteen it is derived from three sources. Namely, swallowed air 68%, diffusion from the blood stream 22% and fermentation 10%. Gas is not visible throughout the remainder of the small intestine because it is intimately blended with the chyme by peristalsis.

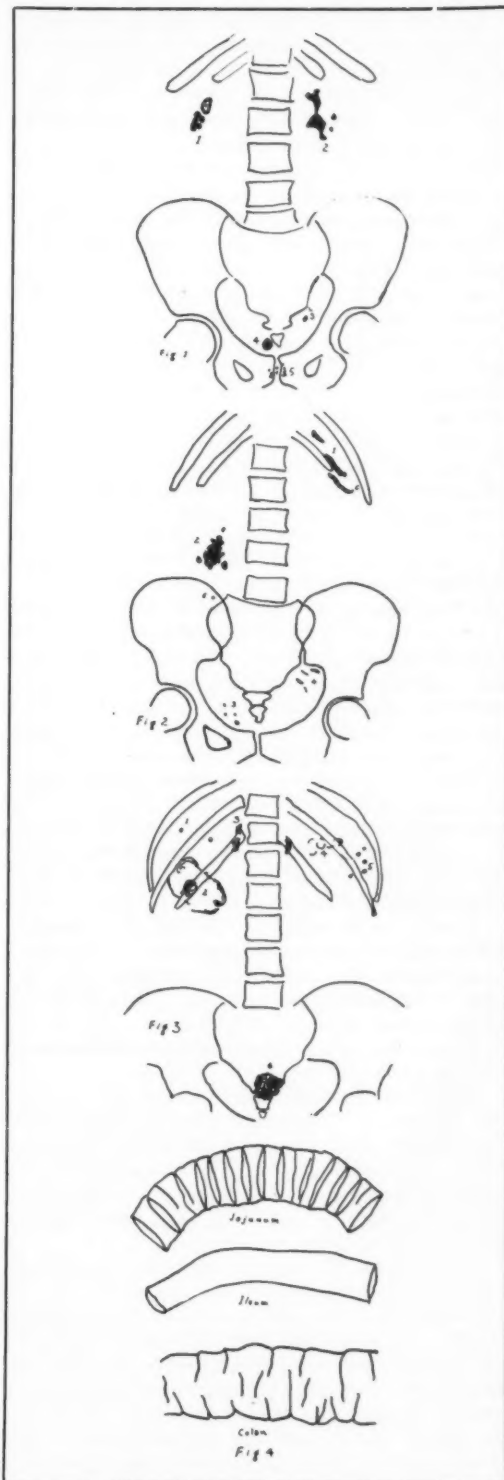
Gas is abnormally present in the gastro-intestinal tract in association with stoppage or slowing of the onward progress of the intestinal contents. This is caused by muscular or neurogenic dysfunction and mechanical obstruction.

Muscular or neurogenic dysfunction is generally referred to as ileus. It may be inhibitive, paralytic or spastic, the common feature being failure to propel the intestinal contents towards the anus. Because of the stoppage, the minute suspended gas particles coalesce into visible aggregations; the vascular supply of the intestine becomes stagnant and more gas diffuses into the gut; and finally the gaseous products of fermentation and swallowed air accumulate. The net result is visible intestinal gas shadows on the roentgenogram. The cause may be primary in the bowel itself or reflex from a number of stimuli. Any amount of bowel from one short segment to the entire gastro-intestinal tract may be involved in ileus.

From the radiographic standpoint, in the small intestine, ileus is the mere presence of gas. This may or may not be associated with distention. The cause of ileus usually cannot be determined from the roentgenogram. Close correlation with the clinical features of the case is required to establish its full significance. Ileus may be associated with a local or general peritonitis. It is well known as a post-operative sequela. Reflexly it is produced by a variety of intestinal ailments and pain. It is often associated as a non-specific reflex feature in pyelography, severe injuries and in anxiety and pain generally. Probably excessive air swallowing is the major cause under the latter circumstances. It often accompanies nephrosis.

As a rule the accumulation of gas in ileus is a slow process. Gross distention as seen in mechanical obstruction is not the rule. When it does occur the differentiation is difficult or impossible since the gas patterns are very similar in the two conditions. Ileus should not be confused with the gas normally present in infants and that associated with crying in children.

In the colon the zone of overlap between the normal state and ileus is quite broad. Ileus rapidly goes on to distention and then the differentiation



from mechanical obstruction is almost impossible on radiographic examination alone. Ileus of the colon alone does not appear to be common.

Mechanical obstruction directly blocks intestinal traffic. Gas then accumulates proximal to the point of obstruction. This may proceed to distention within three and a half to four hours.

From the appearance of the distended bowel it is often possible to identify the part involved and thereby suggest the approximate site of obstruction. This is of considerable aid to the surgeon in selecting his site of incision. Not infrequently, however, the obstruction is found at a lower level than anticipated from radiographic examination. Shifting of the gas along the intestine when the patient is in position for X-ray examination probably accounts for this.

Distended jejunum is identified by the encircling valvulae conniventes. These are fixed folds which no amount of distention can erase. The ileum has very few cross-markings when distended. Inter-digitating, discontinuous haustral lines are seen in the colon when distended. In infants, however, these are not present. See fig. 4.

Unfortunately, it is impossible from the radiographic evidence of distention alone to indicate the cause of most obstructions. This is an important source of difficulty for an intestinal strangulation cannot be differentiated from a simple ileus with distention. Where the entire gastro-intestinal tract is distended ileus is generally the cause. Possibly repeated radiographic examinations at short intervals might aid in differentiation. In mechanical obstruction the dynamic state of the bowel might be revealed by change in the appearance of the distended loops. In the adynamic bowel of ileus such changes would not be expected.

Significant distention is demonstrable whether the patient is vertical or horizontal. However, minor degrees are more readily diagnosed in the erect or left lateral decubitus positions because of the additional evidence of fluid levels.

Among the causes of gastro-intestinal distention were found the following:

Congenital duodenal band, Congenital malrotation of the gut, Congenital sigmoid constriction, Imperforate anus, Old post-operative adhesions, Atresia of small bowel, Anomalous peritoneal bands, Intussusception, Metastases, Strangulated hernia, Ca. of colon, Gall stone impacted in ileum, Regional ileitis, Ileus, Diverticulitis.

Gas outside the gastro-intestinal tract but within the abdomen (pneumoperitoneum) can be demonstrated in the left lateral decubitus position between the liver and right abdominal wall. It can also be seen in the erect position beneath the diaphragms. It is found in these locations because the gas, being lighter than the viscera, rises above the latter when they are together within the closed confines of the abdominal cavity. Pneumo-

peritoneum was found in association with perforated duodenal ulcer, splenic abscess, external perforating trauma and as a post-operative residue and with gas cysts of the mesentery. Interposition of the colon between liver and diaphragm must be differentiated from pneumoperitoneum. Gas in the biliary tree indicates a fistula between the bowel and the gall-bladder.

### Soft-Tissue Shadows

The degree of contrast between the radiographic densities of the abdominal viscera or "soft tissues" is almost negligible. Only the kidney and psoas shadows can be identified with any degree of regularity. This is because they are outlined by the relative translucency of the surrounding fat. Changes in their size, shape or position can generally be detected. Peri-renal extravasation or inflammation reduces the fat translucency, thereby obliterating the renal and psoas outlines. This sign, however, is not pathognomonic as these outlines may be absent without pathology being present. Obliteration of the psoas outlines in their upper halves is said to be also caused by acute pancreatitis. Outward bulging of the psoas shadows may be associated with an intramuscular or "psoas" abscess.

One cannot depend on the abdominal film for an accurate visualization of the liver and spleen. When there is gross clinical enlargement of these organs an increased opacity of indefinite outline will be apparent in the upper abdomen. X-ray examination therefore serves only to confirm the clinical impression.

Intra-abdominal soft tissue masses may appear as zones of increased density which are often indefinite in outline. They are sometimes further delineated by displaced gas-containing loops of intestine. Such masses include:

Distended bladder, Appendicular abscess, Ovarian or uterine tumors, Pancreatic cysts, Various sarcomas and teratomas.

One may occasionally make a shrewd guess as to the nature of these masses but more often a laparotomy is required for exact identification.

A generalized increase in the density of the abdominal area associated with diminution of contrast and detail may be due to either intra-abdominal fluid or obesity.

Another sign that is mentioned in the literature is obliteration of the linear shadow of the retro-peritoneal fat in the flanks. This is said to be associated with local or generalized peritonitis. This is not a pathognomonic sign and we do not regard it seriously.

### Discussion

The acute abdominal cases which were referred for a plain film of the abdomen may be divided into four groups:

1. Cases in which the diagnosis of renal calculus or intestinal distention was quite certain clinically. In these the X-ray examination served only to confirm the diagnosis and indicate the details of the pathology.

2. Cases in which the diagnosis was not yet established. The abdominal film served as a "scout" film to exclude opaque calculi or distention before making a diagnosis.

3. Cases in which a diagnosis of acute appendicitis had been made with fair certainty. There were very few of these referred. As a consequence we were not given an opportunity to study the reflex ileus or the obliteration of the retroperitoneal fat line which are described in the literature.

4. Cases in which rupture of a hollow viscus is suspected. In these a left lateral decubitus or erect film were made in addition to the horizontal.

The plain abdominal film can only be expected to reveal about 10% to 35% of biliary calculi as only this proportion are calcified according to various authors. The exclusion value of the examination is therefore very low for this type of stone. On the other hand, however, it is estimated that 85% to 90% of urinary calculi are calcified and are therefore visible on the plain abdominal film. Conversely, in the absence of calcification the examination has a high exclusion value for urinary calculi.

Gas in the intestines without distention indicates an ileus which may or may not be significant. This can be decided by correlation with the clinical aspects of the case.

Gaseous distention, however, is always significant because it is a prominent sign of intestinal obstruction and marked ileus. Hendricks and Griffin found intestinal distention in 65% of obstructions. It is therefore a valuable factor in the diagnosis or exclusion of obstruction. Where there is doubt, re-examination after a short interval will aid in establishing a diagnosis. Of course the cause will not be evident from the X-ray examination unless it is due to an opaque biliary calculus.

Where rupture of a hollow viscus is suspected the films made in the special positions indicated will often show a pneumoperitoneum. Absence of the latter, however, does not exclude a rupture which may have become walled off.

The chronic abdominal cases which were referred fall into two groups:

1. Those having predominantly urinary symptoms. In these cases it was desired to determine the presence of urinary calculi and any change in size, shape or position of the renal and psoas shadows. Pyelography was generally done at the same time.

2. Cases of vague or unusual chronic abdominal complaints. The examination was done as a preliminary survey with a view to detecting soft tissue alterations and unusual or unexpected calcification which might be obscured by later barium studies. In some of these cases the plain film gave the lead to a line of investigation other than that suggested by the patient's original complaints.

### Conclusion

For maximum diagnostic value the following routine is suggested in the interpretation of plain films of the abdomen:

1. Specific comment to be made regarding the presence or absence of (a) Opaque calculi; (b) Significant intestinal distention including its distribution.

2. Any other calcific shadows to be noted and their identity suggested.

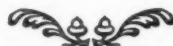
3. The distribution of intestinal gas (when distention is absent) to be mentioned without comment unless the clinical features are known.

4. A diligent search to be made for any variation in soft tissue contours and their appearance described.

5. Any visible bony abnormalities and foreign bodies to be noted.

Where pneumoperitoneum or fluid levels are to be demonstrated erect or left lateral decubitus abdominal films are to be made.

R. G. W.



## What Is Normal?

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### The Nature of the Enquiry

The purpose of this paper is to answer the question "What is Normal?" in relation to the separation of normal from pathological in the practice of medicine. Two problems present themselves in this connection. The first is that of the determination of the standards that can be used as guides to make the distinction required. The second problem arises after the standards of normal have been established. The individual patient is found to have a borderline measurement. How can the significance of this be assessed?

### Overlap Between Normal and Pathological

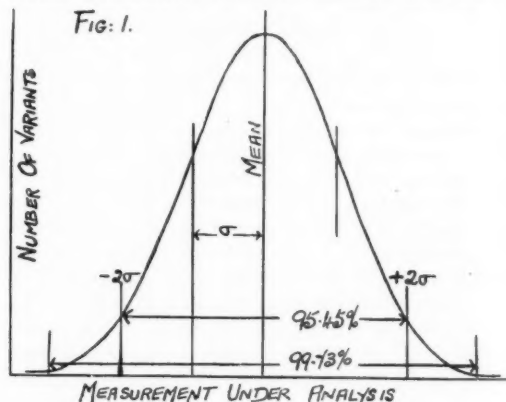
Before proceeding further it is essential to indicate that throughout the field of medicine wherever we measure individual characters there is an overlap between the range of normal and the range of pathological. Thus, with body temperatures many observers must have found that they were unable to accept a sharp dividing line at 98.4 degrees F. Prof. Samson Wright\* has recently published evidence to show that the physiological range of body temperatures (as illustrated by hourly readings day and night) may vary from 95 degrees F. to 99.2 degrees F. He proceeds to enquire "The question may fairly be asked: Why have a mark on clinical thermometers opposite 98.4 degrees F? In one person such a temperature at any time of the day may represent pyrexia; in another the maximal normal temperature may be almost 1 degree F. higher." Here we have an expression of the essence of the situation. The dividing line of 98.4 degrees F. fails to separate normal from abnormal because there is a zone of overlap. Similarly diabetic patients may have a normal fasting blood sugar whilst those with normal carbohydrate tolerance may have borderline or suspicious figures. Patients with normal renal function may have a raised blood urea and those with diminished renal function may have normal figures. It is unnecessary to elaborate for brief consideration is sufficient to lead to acceptance of the concept. Indeed it is difficult to think of any unit measurement where such an overlap does not exist. It is because of this then that our conventions of sharply drawn dividing lines do come under criticism. It is exactly because of this that Professor Wright asks, "Why have a mark on clinical thermometers opposite 98.4 degrees F?" And the answer to the question is: "98.4 degrees F. is acceptable because it represents a suitable index of this zone of overlap of normal and abnormal." It is not the mark at 98.4 degrees F. that is at fault but it is rather our incorrect thought approach that should be challenged. In summary the dis-

tinction between normal and abnormal should be thought of as a borderland rather than as borderline although too often our conventional methods of expression make no allowance for this.

### Standards of Normal

There are two methods available for establishing our standards of normal. But first a decision must be taken as to the selection of material on which to work. It is conventional to suppose that the random selection of those that feel normal is a satisfactory method of selection. Such a presumption of normality seems strange but on further consideration it is seen that the method is both convenient and satisfactory. In addition it is often the only method available.

If the investigator has decided to accept the random selection of presumed normals then he may proceed, as previously stated, in one of two ways. He may collect mental impressions and at the end of a suitable period of investigation he may draw conclusions from these impressions. Thus a clinical pathologist may decide that the appearance of more than ten pus cells per high power field of urinary sediment is abnormal. Impressions thus gained are suspect for obvious reasons but the method is available and may result in satisfactory decisions. Alternatively the observer may accurately measure and record his results and subject them to biometric analysis.



The percentage of variants included between the limits of (a)  $2\sigma$  and (b)  $3\sigma$  on either side of the mean is indicated.

The type of biometric analysis used is a simple one. It is applicable to such phenomena of biological variation, e.g. the height of normal men, as vary symmetrically in an orderly fashion about an arithmetic mean. It is noteworthy that the curve that is plotted to express this relationship will have a "cocked hat" or "normal" shape as illustrated in Fig (1). One other term that is important in this connection is "standard deviation." It is sufficient to say that standard

\*Mall Medical Group, Winnipeg.

deviation is an expression of the scatter of the observations recorded around the arithmetic mean. It is an expression of the width of the base of the "cocked hat" curve. Now statisticians have established certain essential facts about the relationships of the arithmetic mean and the standard deviation ( $\sigma$ ) to the range of variants under study. These facts are also indicated in Fig. (1).

Let us pause for a moment and reconsider the purpose of our measurements. We can if we choose indicate the almost entire range of variants and thus draw lines at the extremes of normal. Such lines could be drawn at the level of  $3\sigma$  on either side of the mean and we could justly argue that anything outside these limits is pathological because of the remote chance of finding a normal with such a measurement. Such a method of separating normal from abnormal has in fact often been used as will be seen in the examples listed below. But its defect lies in the fact that it takes no account of the overlap of the ranges of normal and pathological. Because of this or for other reasons some observers have found it necessary to reduce the "range of normal" to say what is measured within the confines of the mean plus or minus twice  $\sigma$ . Obviously it cannot be true that the range of normal can thus be made to shrink at the convenience of the observer. But dividing lines drawn at the level of twice  $\sigma$  on either side of the mean will sacrifice only five per cent of normals. This loss is compensated by keeping most of the pathology on the outside. Finally it must be pointed out that this represents most of the adjustment that can profitably be made in this way. For if the line is drawn any great way nearer the mean so much of normal will be sacrificed as to make the test increasingly meaningless. It is clear then that we can use such biometric analysis both to establish our standards of normal and also to assess the value of those standards now in common use.

#### The Special Problem

It is generally true that there is a reluctance to accept wide variations from the mean as being within the limits of normal. In part this reluctance may arise because there is insufficient appreciation of the range that is usual in biological variation. In part, however, it is justifiable because such wide variation may in certain instances (e.g. obesity) carry an unfavourable prognosis. In general terms the method of biometric analysis indicated above may in the circumstances give the clinician a false lead for he is much concerned with the detection of the precursors of the pathological and his standards of normal should be indices convenient to this purpose. Consider the example of blood pressure. Here there is a bias to suppose that high blood pressures may lead to wear and tear which is later manifest as disease.

Because of this the clinician is rightly reluctant to include the entire range of presumed normal blood pressure within the medical range of normal. Another example of this type of problem arises when we ask ourselves "What is the significance of the diminished carbohydrate tolerance that is known to occur in older people?" Here we cannot use the random selection of presumed normals because the presumption may rather be that it is difficult to find older persons whose organs are not decaying if they are not diseased. Even if we could accept such a selection we should still be confronted with the opinion that untreated diminution of carbohydrate tolerance tends to be a progressive affair. In either case the way out of the difficulty is the one followed by the actuaries of life insurance companies. Long term observation of groups that are similar except for the measurement under question will establish whether the possession of such a character carries an unfavorable prognosis for the enjoyment of good health or for the living of a long life. Decisions can then be taken as to the normality of the character under study.

#### The Significance of a Borderline Measurement

The significance of a borderline measurement may depend upon the age and sex of the patient, on the technique used in the particular laboratory, on the results of serial observations, on the error inherent in methods of measurement, and on many other factors. Taking all this for granted there are two methods of assessing such a measurement. The first method depends upon an appreciation of the principles indicated above. Let us illustrate by examining the common situation where the entire range of variants is acceptable as the range of normal and where the overlap of normal and pathological is not excessive. In this circumstance all measurements between the mean and  $2\sigma$  are normal whilst all those outside  $3\sigma$  are abnormal. In the zone between twice and three times  $\sigma$  will be found 5% of normals and a variable number of abnormals. This is the zone of uncertainty. In the absence of further information we can state that there is a sliding scale of probability whereby a measurement becomes increasingly unlikely to be normal as it approaches the outer limits of this zone. It will be obvious that a different thought approach will be required if the range of normal is not drawn at  $3\sigma$ . The application of all this to the current practice of medicine will presently be obvious for our standards of normal are set some at the level of  $3\sigma$  and others more or less at or near the level of  $2\sigma$ . In the most general terms in the former instance all measurements outside the range are abnormal and those immediately within the range are probably abnormal too. In the latter instance all measurements within the range are normal and some measurements outside

the range are also normal. In other words the critical zone of uncertainty lies inside the former "range of normal" and outside the latter "range of normal." It must be confessed, however, that the sharp edge of the significance of these ideas is blunted somewhat by the presence of other variables such as the error inherent in measurement.

The second method of assessing the significance of a borderline measurement consists of an enquiry into the evidence that is available from all the related phenomena. Thus if the fasting blood sugar is borderline it is generally possible to distinguish its significance by a glucose tolerance curve. But even the latter may give border zone readings and then the related phenomena of family history of diabetic symptoms and complications, etc., must all be considered. Similarly if the urea clearance test is in the border zone the final decision will be influenced by the past history, the present symptoms and signs and the results of other relevant investigations. If these be positive it is difficult to escape the conclusion that the lower limit of normal represents in this case a probable shrinkage of function from that which was originally present. Dr. John Parkinson<sup>7</sup> expresses a similar thought with regard to blood pressure, the upper level of normal depending upon the presence or absence of associated phenomena. "We think that the upper limit of the systolic pressure (after exclusion of renal disease and coarctation of the aorta) might with safety be placed higher than 160 mm. provided that the diastolic pressure is 90 or below and that there is no evidence of left ventricular enlargement on radiology." Equally a normal leucocyte count may have the significance of a leucocytosis if the differential count favours this view. Finally the same lines of thought can be summarized in the challenging statement that it is possible for a giant to be less tall than a tall man. Gigantism implies great height associated with endocrine disorder and is not merely a matter of many inches. If we rely on the tape measure alone we shall mistake our tall men for giants and our giants for tall men.

#### Current Practice

In this section a few commonly used standards of normal are presented. It will be seen that there is no uniformity of practice and anything from 80% to nearly 100 per cent of the variants (i.e. from less than  $1\frac{1}{2}$   $\sigma$  to 3  $\sigma$ ) has been set up as the range of normal.

#### Haematological Standards

In all their original work Price Jones<sup>8</sup> and his associates assessed the range of normal to be 3  $\sigma$  on either side of the mean. By contrast Wintrobe<sup>9</sup> in describing his own earlier work<sup>10</sup> with regard to mean corpuscular volume, Haemoglobin percentages and Haemoglobin con-

centration states "The normal range of variation has been determined statistically and represents the values found in 85 to 88 per cent of normal persons." Consider the following figures for mean corpuscular volume.

	Mean	$\sigma$	Range of normal
Price Jones .....	85.920 W <sup>3</sup>	3.39	75.74 to 96.09
Wintrobe .....	86.5 W <sup>3</sup>	3.5	82 to 92

It becomes obvious that in spite of a close approximation in the recorded observations the range of normal has become very different for reasons already indicated.

#### Blood Urea

Reference Mackay and Mackay<sup>5</sup>

Mean = 29.3 mgs. % = 6.98 mgms. %

Accordingly 3  $\sigma$  on either side of the mean represents a range of approximately 8 to 50 mgms. per cent.

#### Blood Sugar

Differences in technique, in values for capillary and venous blood, in values for reducing substances and for true sugar have all rendered the situation almost too complex to analyze. It has been suggested<sup>2</sup> that a venous blood sugar "by Somogyi method, or other method indicating true glucose value" over 110 mgms. per cent "indicates diabetes with a high degree of accuracy." In its own context this statement is acceptable for many provisos are added. Reference to the work of Lozner et al<sup>4</sup> (M = 89 mgms. % = 9.1 mgms. %) shows that the level suggested lies between 2  $\sigma$  and 3  $\sigma$  beyond the mean.

#### Fractional Test Meal

The limits of free Hydrochloric acid present in the gastric juices of 80 per cent of 100 healthy students were used by Hurst and Ryle to represent a standard of normal.

#### Blood Pressure

The following figures were obtained by Alvarez<sup>1</sup> in an overall analysis of his systolic blood pressure readings in 6000 men between the ages of 16 and 40 years at the University of California.

Mean = 128.9

$\sigma$  = 13.5

In this connection it is of interest to note Parkinson's views quoted above. William Evans<sup>3</sup> adopts an even more liberal attitude. "The blood pressure is raised when the systolic pressure is 180 or over . . . in the presence of . . . evidence of cardiovascular hypertrophy."

#### Conclusion

Attention is drawn to the overlap in unit measurements between the ranges of normal and pathological. Because of this and because of the other variables indicated all measurements in a border zone can of themselves only be of uncertain

significance. There is no sharp line dividing normal and abnormal.

It is unfortunate that our standards of normal have been set at so many different levels because this introduces an additional variable into this difficult border zone situation. In one case a standard of normal has been set up (80%) that excludes one in every five normal measurements. In another a standard (3  $\sigma$ ) has been adopted that excludes only one in three hundred and seventy normal measurements. It would seem that all this has resulted, in part at any rate, from an ignorance of the principles indicated in this paper. To the writer it seems suitable that standards of normal should be drawn at the level of 3  $\sigma$  on either side of the mean. All who use the standards will do so in the simple knowledge that although the entire range may be normal yet measurements lying near the extremes of the range are increasingly unlikely to be normal as they approach these limits.

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### Free Blood

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Considerable interest has been aroused amongst the medical profession in Manitoba by the advent of the Canadian Red Cross Blood Transfusion Service and it would probably be timely to present an outline of this organization.

It must be realized that the Service is not experimental and untried. Basically it is derived from war time experience in the various European countries, notably Great Britain, which had, of necessity born of war, to organize a national transfusion service to cope with the extraordinary demands of military and of civilian air raid casualties. While in these countries blood banks were present in almost every hospital of any size, not only was it impossible for these banks to expand to meet additional demands of war but, indeed, they were only too often unable to satisfy the demands arising from the routine work of their hospital.

Speaking particularly of the National Transfusion Service of Great Britain, it rapidly became obvious that such a Service, with an appeal to

the general public based entirely upon humanitarian grounds, could enroll more donors than could the hospital blood banks by themselves. Indeed, it was not long before blood from the regional depots of the new Service began to find its way into hospitals for ordinary civilian purposes and this flow increased steadily until the tendency became obvious of hospitals relying more upon the regional depots than upon their own means of donor procurement. As a logical result the hospitals began, one by one, to close their own banks and to rely entirely upon the National Service. It would be well for me to emphasize that the National Transfusion Service in Great Britain is a thing quite apart from state medicine as such, even although the medical and technical staff were, from the beginning, employees of the Ministry of Health. In Canada the system is unique in that all personnel involved are employees of the Red Cross Society and that there is no direct connection with the Dominion Government, although the Provincial Governments assist by a grant towards the building of the laboratories and work rooms.

It should further be realized that, with the exception of the majority of those engaged in donor procurement and of workers such as receptionists and canteen assistants in the donor clinics, all personnel in the Service are full time and require to be adequately qualified for the job, whether that be medical, technical, transport or clerical. For example, a technician must have a degree in science or be a registered technician, and in addition, undertakes a course of instruction in the techniques used by the Service. This is remarkable in a voluntary organization such as the Red Cross Society, but that it must be so is obvious from the very nature of the undertaking, which is, in the words of the Honorable the Minister of National Health and Welfare, "One of the finest medical and public health projects ever to be undertaken by a country to save the lives of its citizens."

The manner in which the Service was introduced to Canada is insufficiently known to the majority of the medical profession. That the Canadian Red Cross Society conducted an outstandingly successful campaign during the war for the supply of dried serum for the Canadian Forces overseas is common knowledge. That the Red Cross Society was approached towards the end of the war by several Hospital Associations and by Provincial Departments of Health with a request that a similar blood donor service might be provided in peacetime to meet civilian hospital needs is less well known. Following this request a Joint Committee was formed with members of the Canadian Hospitals Council, the Blood and Blood Substitutes Committee of the National Research Council and the Canadian Red Cross

Society. This Committee requested a survey of Canadian hospital needs in this respect, a survey which was completed in October, 1945, and which covered over 80% of all the general hospital beds in Canada. The report showed that there were many areas in Canada completely devoid of transfusion facilities and that, even in metropolitan centres, hospitals had great difficulty in meeting their own needs. It was further shown that the cost of blood transfusion was frequently beyond the patient of average financial means, particularly if multiple transfusions were required. A plan for a national blood transfusion service was therefore drawn up and submitted to the original Joint Committee, the object being to supply every hospital in Canada, free of charge, with whole blood, dried plasma, distilled water for the reconstitution of plasma and sterile administration sets. The one stipulation was to be that a participating hospital would undertake to make no charge whatsoever to patients transfused under this scheme. This would mean a four-way co-operative plan. The Provincial Department of Health would supply premises for central laboratories or a capital grant in lieu. The hospitals would contribute by agreeing to administer the transfusion free of charge. The Red Cross would furnish the scientific equipment, the personnel, the necessary transportation and the administration of the service. Last and most important, the project would depend upon public spirited men and women who would give their blood freely and regularly as volunteer donors.

The Joint Committee recommended this plan to the Central Council of the Canadian Red Cross Society which received it with enthusiasm. It was publicly endorsed by the President of the Canadian Medical Association, and has been endorsed by the Provincial Medical Associations, the Colleges of Physicians and Surgeons, Hospital Associations and Provincial Departments of Health of every province in which the Service has been in operation. The first unit began operations in Vancouver in February, 1947, and the service has been extended to cover Alberta, the Maritimes, Montreal and Hamilton, Ontario. The success of the project in the areas already served is fully proven by the numerous complimentary testimonials which have been sent to our headquarters, and copies of which are available for perusal. Ultimately the Service will expand until Canada is covered from coast to coast.

The Service operates in this manner. Donors are enrolled by voluntary workers of the Red Cross Society, aided often by voluntary workers from other community organizations. The arrangements for actual donor clinics are in the hands of a full time donor organizer. Donors are bled at clinics within the permanent premises, such as those on Osborne St., Winnipeg, or by a mobile unit which

will operate in virtually any locality and under any climatic circumstances. The number of donors at each clinic averages between 100 and 150. Adequate records are kept of the donor's fitness to give and, in any doubtful case, the opinion of the donor's medical attendant is always sought. Naturally, anaemia is always excluded by a suitable hemoglobin test. When handed to the technicians the ABO group and Rh type of each bottle of blood is established by the full technique advocated by the Medical Research Council. In addition, a Presumptive Kahn Test is made to exclude syphilis. The blood is then stored in fully controlled refrigerators according to group, type and age. Any blood not used within 14 days is converted into dried and ultra-violet irradiated plasma.

Where a hospital is within ready access to a depot, clotted blood from the patient may be brought to the depot by our transport which, in the case of large hospitals, maintains a regular twice or thrice daily run. The ABO group and Rh type of the patient's blood is then established by the same full technique and suitable bottles selected from the refrigerator. Samples of blood are removed from each bottle by an aseptic technique for cross-matching to ensure maximal safety. When thus proved compatible each bottle is sealed, tagged with the patient's name and placed in a separate refrigerator awaiting transport to the hospital at a time specified by the medical attendant. This scheme covers the majority of transfusions, which are of an elective nature. For emergency purposes the plan of operation can be best explained by an illustrative case as, for example, of a patient admitted, exsanguinated by hemorrhage from a peptic ulcer. In every hospital of any size there is kept a supply of "universal donor" blood, Rh positive and Rh negative, which may be given immediately without cross matching. In addition, each hospital will carry supplies of dried plasma. To the patient in question, both the "universal donor" blood and plasma are at hand for immediate administration. A phone call to the Transfusion Service Depot will immediately bring a transport vehicle to the hospital, loaded if need be with further supplies of "universal donor" blood and plasma. This transport will collect a specimen of blood which has, in the meantime, been taken from the patient and, on return to the Depot, the routine of grouping and typing the patient's blood and of cross matching with blood from the bank is followed. Once compatibility is established a transport will immediately deliver the blood to the hospital. The service is, of course, available 24 hours a day, but normally all elective work is carried out during the day and the skeleton night staff is planned to be available for emergency cases only.

For smaller centres the precise method of

servicing each hospital depends upon the size of the hospital and certain local conditions. A common example is where a hospital, medium sized, serves an area too far distant for the routine transport service outlined in the previous paragraph. Such a hospital is usually supplied with a bank, renewed weekly, consisting of a sufficient number and variety of grouped and typed blood to cover all the usual needs. The pathologist or technician at the hospital would undertake group- and typing of the patient and cross matching with the blood from the bank. If it is a technician who undertakes these tests a cordial invitation is always extended to spend a short time in our laboratories studying the techniques used by the Service.

Such, then, is a brief review of the manner in which the Service came into being and the way in which it operates. The importance of the project can be realized only if it is appreciated that the advances in knowledge of blood transfusion and related subjects during the war years and the constantly increasing use of this form of treatment have probably saved more lives than any other additions to our knowledge in the same period. The antibiotics not excluded. There is no substitute for blood. Blood cannot be manufactured. The increased quantities of blood used by the hos-

pitals creates a demand which can be met only by an appeal to the community and blood donation must be widely recognized as the most important of all community services. The medical and nursing professions should realize their responsibility in this connection. As leaders of thought and action, they should be among the first to enroll as volunteer donors. They should constantly seek opportunities of enrolling donors amongst the friends and relatives of their patients who have had blood given to them from this community bank because, while there is no question of compulsion, there is a moral obligation to repay what was withdrawn. I have no hesitation in saying dogmatically that no doctor can with a clear conscience, become apathetic, because it would be strange if none of his patients ever received a transfusion. Furthermore, those prescribing blood transfusions must never do so without due thought because, whilst life saving when given on the correct indications, transfusion is a two-edged weapon and, even under the best circumstances, is never wholly free from risk. A further point is that blood unnecessarily prescribed or wasted by careless handling is blood lost beyond retrieval and the person concerned is guilty of a breach of faith with the volunteer donor who gave to benefit a fellow man.

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## University of Manitoba, Faculty of Medicine REFRESHER COURSE TENTATIVE PROGRAM

*Arranged by the Committee on Post Graduate Studies*

**Winnipeg, April 5th, 6th, 7th, 1950**

### **Wednesday, April 5th**

#### **Morning**

St. Boniface Hospital.

#### **Noon**

Clinical Luncheon, St. Boniface Hospital.

#### **Afternoon**

Medical College.

#### **Evening**

Pathological Conference.

### **Thursday, April 6th**

#### **Morning**

Winnipeg General Hospital.

#### **Noon**

Clinical Luncheon, Winnipeg General Hospital.

#### **Afternoon**

Medical College.

#### **Evening**

Dinner.

### **Friday, April 7th**

#### **Morning**

Children's Hospital.

#### **Noon**

Clinical Luncheon, Children's Hospital.

#### **Evening**

Deer Lodge Hospital or Medical College.

Arrangements are being made for Guest Speakers, the names of whom will be announced in the March issue of the Manitoba Medical Review.

An attempt is being made to arrange for hospitals to supply internes for locum tenens.

## Medico-Historical

J. C. Hossack, M.D., C.M. (Man.)

### The Balsam of Fierabrass

While they were thus arguing, the officer advanced, and wondered to hear two men talk so calmly to one another there: yet finding the unfortunate knight lying in the same deplorable posture as he left him, stretched out like a corpse, bloody, bruised and beplastered, and not able to stir himself, "How is it, honest fellow," quoth he to the champion, "how do you find yourself?" "Were I your fellow," replied Don Quixote, "I would have a little more manners than you have, you blockhead, you; is that your way of approaching knights-errant in this country?" The officer could not bear such a reprimand from one who made so scurvy a figure, and lifting up the lamp, oil and all, hit Don Quixote such a blow on the head with it, that he had reason to fear he had made work for the surgeon, and therefore stole presently out of the room, under the protection of the night. "Well, sir," quoth Sancho, "do you think now it was the enchanted Moor, or no? For my part, I think he keeps the treasure you talk of for others, and reserves only kicks, cuffs, thumps and knocks for your worship and myself." "I am now convinced," answered Don Quixote; "therefore let us waive that resentment of these injuries, which we might otherwise justly show; for considering these enchanters can make themselves invisible when they please, it is needless to think of revenge. But I pray thee rise, if thou canst, Sancho, and desire the governor of the castle to send me some oil, salt, wine and rosemary, that I may make my healing balsam; for truly I want it extremely, so fast the blood flows out of the wound which the phantasm gave me just now."

Sancho then got up as fast as his aching bones would let him, and with much ado made shift to crawl out of the room to look for the innkeeper, and stumbling by the way on the officer, who stood hearkening to know what mischief he had done. "Sir," quoth he to him, "for heaven's sake, do so much as help us to a little oil, salt, wine and rosemary, to make a medicine for one of the best knights-errant that ever trod one shoe of leather, who lies yonder grievously wounded by the enchanted Moor of this inn." The officer, hearing him talk at that rate, took him to be one out of his wits; and it beginning to be daylight, he opened the inn-door, and told the innkeeper what Sancho wanted. The host presently provided the desired ingredients, and Sancho crept back with them to his master, whom he found holding his head and sadly complaining of the pain which he felt there; though, after all, the lamp had done him no more harm than only raising two huge bumps; for that

which he fancied to be blood was only sweat, and the oil of the lamp, that had liquored his hair and face.

The knight took all the ingredients, and having mixed them together, he had them set over the fire, and there kept them boiling till he thought they were enough. That done, he asked for a vial to put this precious liquor in: but there being none to be got, the innkeeper presented him with an old earthen jug, and Don Quixote was forced to be contented with that. Then he mumbled over the pot above fourscore paternosters, and as many ave-marias, *salve reginas*, and *credos*, making the sign of the Cross at every word, by way of benediction. At which ceremony Sancho, the innkeeper, and the officer were present; for, as for the carrier, he was gone to look after his mules, and took no manner of notice of what was passed. This blessed medicine being made, Don Quixote resolved to make an immediate experiment of it on himself; and to that purpose he took off a good draught of the overplus, which the pot would not hold: but he had scarcely gulped it down, when it set him a-vomiting so violently, that you would have thought he would have cast up his heart, liver and guts; and his reaching and straining put him into such a sweat that he desired to be covered up warm, and left to his repose. With that they left him, and he slept three whole hours; and then waking, found himself so wonderfully eased, that he made no question but he had now the right balsam of Fierabrass; and therefore he thought he might safely undertake all the most dangerous adventures in the world, without the least hazard of his person.

Sancho, encouraged by the wonderful effect of the balsam on his master, begged that he would be pleased to give him leave to sip up what was left in the pot, which was no small quantity; and the Don having consented, honest Sancho lifted it up with both his hands, and, with a strong faith and better will, poured every drop down his throat. Now the man's stomach not being so nice as his master's, the drench did not set him a-vomiting after that manner, but caused such a wambling in his stomach, such a bitter loathing, kecking, and reaching, and such grinding pangs with cold sweats and swoonings, that he verily believed his last hour was come, and in the midst of his agony gave both the balsam and him that made it to the Devil. "Friend," said Don Quixote, seeing him in that condition, "I begin to think all this pain befalls thee, only because thou hast not received the order of knighthood; for, it is my

opinion, this balsam ought to be used by no man that is not a professed knight." "What a plague did you mean then by letting me drink it?" quoth Sancho. "A murrain on me and all my generation, why did not you tell me this before?" At length the dose began to work to some purpose, and forced its way at both ends so copiously, that both his bedmat and coverlet were soon made

unfit for any further use; and all the while he strained so hard, that not only himself but the standers-by thought he would have died. This dreadful hurricane lasted about two hours; and then, too, instead of finding himself as free from pain as his master, he felt himself as feeble, and so far spent, that he was not able to stand.

Cervantes "Don Quixote."

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## BOOK REVIEWS

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### A Valuable Vade Mecum

I have before me a little book which, I believe, nine out of ten of you would buy after a brief glance. It is a Handbook of Medical Management in which you will find concise answers to almost every problem of medical care. While it is small in size (it easily fits the pocket), small type and condensation make it a really substantial volume.

The text is clear and simple. Indented margins, diagrams and a multitude of tables make the matter still easier to grasp. It is completely up-to-date and the publishers promise a yearly revision to keep it so.

There are three chapters on—1. General Aspects of Medical Management; 2. General Symptomatic Treatment; and 3. Dietetics and Nutrition. The remaining seventeen chapters deal with diseases grouped under systems. There are diagnostic points, references to physiology and pathology, when these are indicated, and, complete, clear instructions on medical management.

The authors are M. Chatton, S. Margen and H.

D. Brainerd, all of the University of California. There is a foreword by Dr. W. J. Kerr, Professor of Medicine in that University. Here is part of it: "When the diagnosis is established, the clinician's first thoughts are for the welfare of his patient and to bring to bear the most effective therapeutic procedures at the earliest possible moment. He wants to know what to do first and how to use the chemical and other effective methods, in order to relieve symptoms and to restore the normal physiological balance, remembering always that symptoms arise from a disturbance of some normal physiological mechanism.

It is certain that this volume will be of great practical value in the daily conduct of medical practice."

With the last sentence all those who have the book will heartily agree.

Handbook of Medical Management, First Edition; University Medical Publishers, Post Office Box 761, Palo Alto, California. Price (American), \$3.00.

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## OBITUARIES

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### Dr. Clarence Wood Johnston

Dr. Clarence Wood Johnston died on October 13, 1949, at the age of 61, at Elkhorn, Man. Born in Newmarket, Ont., he came to Morden, Manitoba, at an early age. He graduated from Manitoba Medical College in 1914 and enlisted in the C.A.M.C., serving as Captain with the 10th Field Ambulance overseas from 1915 to 1919, and was awarded the Military Cross. Returning to Canada Dr. Johnston bought the general practice of the late Dr. Robert Goodwin at Elkhorn and served the community as physician and surgeon continuously until failing health compelled him to retire a short while ago. He was a former mayor of Elkhorn and chairman of the school board,

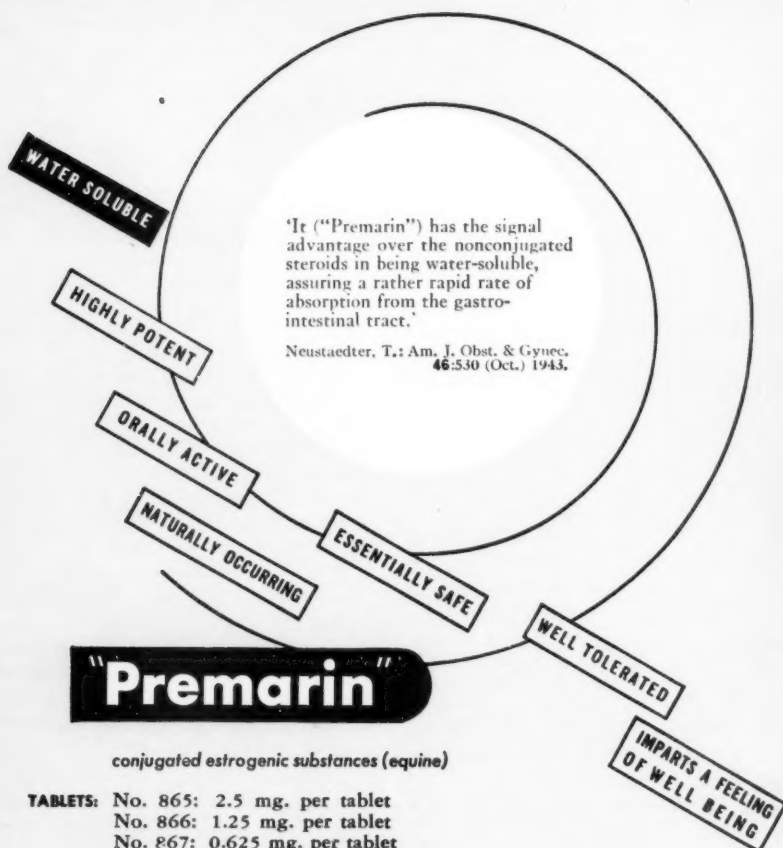
### Dr. Andrew Allan Alford

Dr. Andrew Allan Alford of Oakville, Man., died suddenly on January 16 while attending a school board meeting. Born in Oak Lake, Man., 62 years ago, he graduated in 1913 from Manitoba Medical College and has practiced continuously at Oakville. He was coroner for the rural municipality of Portage la Prairie. Surviving him are his widow, four sons and three daughters.

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### Dr. W. V. Edwards

Dr. W. V. Edwards of Roland, Manitoba, died at the age of 61 at his home on January 18. He graduated from Queens Medical College in 1915.



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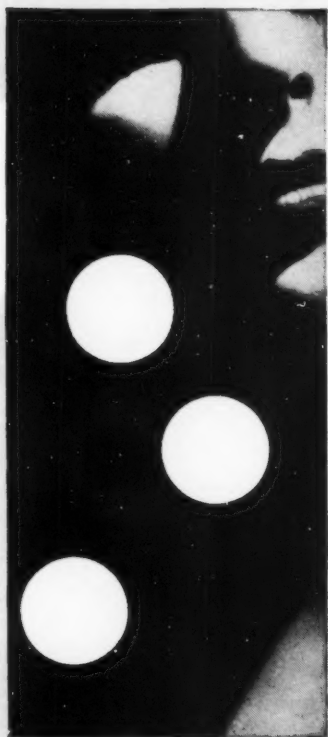
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## Clinico-Pathological Conference

Medical Department, Deer Lodge Hospital

### Hepatic Cirrhosis

Mr. J. C., born Jan. 10, 1895. Occupation, laborer.

July 23, 1945—Seen at D.L.H. for first time complaining of an acute dermatitis (in nature of a vesicular eruption) on both legs—and on both wrists, present for 2 months. Past history, noted as negative; getting a 15% pension for neurasthenia.

He was treated as a case of stasis dermatitis with only moderate improvement.

April 9, 1947—Admitted for flare-up of dermatitis. Temp. 98.6°. Urinalysis: S.G. 1.021, Alb. Neg. Sugar Neg. Micro: 0-4 WBC, 0-4 RBC, no casts. WR Neg. Weight 129 lbs. Discharged in 15 days as improved.

May 17, 1949—Admitted to D.L.H. complaining of (1) Constipation for 1 year; (2) Swollen abdomen for 2 weeks; (3) Anorexia for about one year. Questioning reveals that he had not worked for at least 10 years and for some time had been a heavy drinker. During the past 6 months he had been eating very little but continued to drink heavily. He did not complain of any pain but admitted that his stomach had been troubling him for about one year—with anorexia and vomiting after meals and particularly in the morning.

### Review of Systems

No headache, sleeps well. E.E.N.T., negative. Occasional loose cough, no mention of sputum. Anorexia and vomiting for 1 year. No melena, no hemorrhoids. G. U. negative. Has been losing weight, now 109 pounds.

### Physical

Temp. 101°, Pulse 80, Resp. 20. Short, medium build, appears pale and ill, coughs at intervals. Head and Neck: Sclerae discolored. Tongue dry.

Thorax: Narrow contour with flaring of margins due to abdominal distension. Chest clear; diaphragms elevated. Heart, rate 100, regular. No murmurs, BP 110/60.

Abdomen: Dome shaped and tense, with edematous skin, dull in flanks, tympanitic centrally.

Rectal: Two small tender prolapsed internal hemorrhoids.

Legs: Diffuse edema with scaly dermatitis.

May 19, 1949—X-ray of chest, "The left diaphragm is obscured peripherally by shadow which may represent a small amount of fluid."

X-ray of abdomen, "Most of detail of the abdomen is lost. The appearance would suggest acites."

Sigmoidoscopy unsuccessful but revealed internal bleeding hemorrhoids.

Blood—Sed. Rate 58 mm. 1 hour. Hgb 59%; RBC 2.6M., WBC 11,200; N.69%; L.18%; Monos

2%; Normoblasts 3%. Some macrocytes seen. Serum icteric. Feces XXX occult blood.

May 20, 1949—Abdominal paracentesis of 80 oz., clear amber fluid. S.G. 1.009; Proteins .5 gm%; Cells 110/cumm (white cells). Liver profile: Thymol Turbidity 3 units; Thymol Flocc. Neg. Cephaline Flocc. XXXX. Takata Ara Pos. Serum proteins: Total 4.4 gms %; Alb. 1.75 gm %; Globulin 2.65 gm %; Prothrombin time 50%; Serum Bilirubin: Total 7.4 mgm %; Immediate direct 3.8 mgm %; Delayed direct 4.3 mgm %; Indirect 3.1 mgm %.

Pt. felt better after paracentesis. Temp. 100.5. Pulse 76, Respirations 22. Passing small amounts of bright red blood per rectum.

May 21, 1949—Bone Marrow: "Grossly abnormal—a marked increase in red cell series, with megaloblastic type plentiful. Unusual feature is great increase in phagocytic reticulum cells. Probable pernicious anemia."

Agglutination for B. Abortus, negative.

Barium Enema, "appears normal."

May 25, 1949—RBC 2.8M; Hgb 70%; WBC 11,800. Sed. Rate 99 mms.; (N. 74%; L. 23%; Eosin 1%; Baso 1%); Normoblasts 1%. Reticulocyte count 5.2%; Packed Red Cell 28%; M.C.V. 108 cu. microns. M.C.H. 39 micromicrograms. MCHC 37%; Urinalysis: Color, amber, S.G. 1.020, Alb. .01%; Sug. Neg. Micro: 10-12 WBC, occ RBC; Bacteria seen. Started on concentrated liver extract 2 cc every 4 days.

May 31, 1949—Taking nourishment poorly. Sleeps fitfully and has a mild choking cough. Temp. 99.5-101°. Pulse 70; Resp. 20; given parenamine for nourishment. Abdomen becoming distended again. Slightly edematous from toes to nipples. Urobilinogen in stool—16 mgm in 20 grams stool. Reticulocyte Count 5.5%; Prothrombin time 100%.

June 3, 1949—Barium series: "The prepyloric region of the stomach appears narrow and does not fill readily suggesting a filling defect immediately proximal to the pyloric sphincter for a distance of about 1 inch. 4 hour: "There is a fleck of barium in the small bowel. Summary: Apparent filling defect in the prepyloric region of the stomach."

June 27, 1949—Repeat Ba. Series reported negative.

Abdominal paracentesis 1400 ccs. Liver edge felt for 4 (?) fingers. On high protein diet, beminal and concentrated liver extract. Reticulocytes 1%; Hgb 64%; RBC 3.6M; Sed Rate 72mm/hour. WBC 9,250; Neut 64%; L.33%; Eos 1%; Base 2%; Urinalysis: S.G. 1.015, Alb. Neg. Sugar Neg. Micro: 60-80 WBC, occ RBC.

Stool for urobilinogen: 30 mgm in 25 grams stool. Vandenberg: Imm. Direct 1 mg%; Delayed 1.4 mg%; Indirect 1.1 mg%; Total 2.5 mg%; Urobilinogen in urine 7.2 mgm in 400 cc in 24 hours.

Fluid from abdominal paracentesis: "No evidence of tumor cells seen."

Serum Proteins: Total 4.65 gm. Alb. 1.56 gm; Glob. 3.09 gms.

Pt. taking nourishment poorly—no appetite, very irritable. Vomits occasionally. Repeat blood streaked stool. Temp. swinging 98-103°—tends to be down in morning and up in evening. Liver palpable three fingers and slightly tender.

June 30, 1949—Liver profile: Thymol Turbidity 4 units; Thymol flocc XXX; Cephaline flocc XXXX; Takata Ara, Pos. Alkaline Phosphatase 4.1 K-A units.

Glucose Tolerance:	Blood	Urine
Fasting .....	83 mg%	Trace
¾ hour .....	145 mg%	Neg.
2 hours .....	150 mg%	Neg.
3 hours .....	95 mg%	Neg.

E.K.G. PR. .16; Q.R.S. .07. Rate 107; Low voltage in limb leads, with relatively low T-waves in chest leads. "These changes could be due to edema."

July 15, 1949—Temperature still swinging; developing bed sores. Irritable and requires repeated paracentesis to keep his abdomen comfortable. Mild generalized edema. Slight cough. Total serum proteins 5.34 gms%; Blood: RBC 2.87M; Hgb 68%; WBC 9,500; N.36%; Lymphs 42%; Monos 4%; Eos 17%; Baso 1% Sed. Rate 68mm/hr.

September 1, 1949—"Liver enlarged, very firm and feels somewhat knobby." No appreciable jaundice but sclerae look icteric. General condition poor. Heart regular—rate 90. HP 105/60. Stools now negative for occult blood. Temp. still elevated about 100-101°. Started on penicillin—but no response

September 29, 1949—Chest film: "Film does not appear to have been taken in full inspiration. There is a somewhat homogeneous density overlying the right mid and lower lung field, and the left costo-phrenic angle is obscured. This density would appear to be fluid. The root shadows are heavy, otherwise negative."

October 20, 1949—Marked ascites and looks terminal with Hippocratic facies. Paracentesis done for relief. Shortly afterwards began to vomit coffee grounds. Developing moist creps in both bases. Pulse regular 90. BP 100/70. Temp. 96-100.5°. Penicillin discontinued.

Oct. 26, 1949—Died quietly at 7.45 p.m.

### Clinico-Pathological Conference

#### Autopsy No. 609, General Description

The body is that of an elderly, balding, emaciated male 5 feet 2½ inches in length. The skin is a little icteric, the pupils are equal and measure 4 mm. Coffee ground material appears at the nose and mouth. The abdomen is markedly protuberant and a fluid wave can be elicited. The lower extremities are moderately endematous and there is some early clubbing of the fingers.

### Cranial Cavity

There is moderate generalized cerebral atrophy with a corresponding increase of C.S.F. The meninges are normal; the vessels show moderately advanced atheroma, otherwise the C.N.S. is negative.

### Thoracic Cavity

The right pleural cavity contains 2300cc of clear amber fluid, S.G. 1.015, T.P. 2.40 gms%; Micro: Occasional red cell. The lower lobe is completely compressed due to extrinsic pressure of the fluid. The right lung weighs 390 gms. The cut surface is normal except that the bronchi contain a little coffee ground material.

The left lung is compressed by the presence of 1800 cc of fluid (analysis same as right side). The lung weighs 325 gms and is similar to the right side in all respects.

The pericardium is thickened to 2 to 3 mm but the heart is not remarkable except for beginning calcification at the base of the valve cusps and around the coronary ostia. The coronary arteries show moderate narrowing but no occlusions.

### Abdominal Cavity

The peritoneal cavity contains 3800 cc of amber fluid (S.G. 1.015, T.P. 1.07 gms%; Micro: Many RBC). The fluid is contained in flimsy thin walled loculae made up of string fibrinous material. This is deposited over all the viscera and peritoneum.

The lower end of the oesophagus shows some blue areas beneath the mucosa which are possibly collapsed oesophageal varicosities. The stomach contains 50 cc of coffee ground material. The remainder of the G.I. tract is normal.

The liver is small and fairly soft. Its surface is finely granular and light brown in color. The entire organ weight 800 gms.

The spleen, pancreas, kidneys, adrenals and bladder are normal.

The prostate shows areas of nodular hyperplasia.

### Microscopic Findings

Heart—The pericardium is greatly thickened by a fibrous and fibrinous exudate. There are numerous tubercles scattered throughout the pericardium with epithelioid cells, Langhans giant cells and lymphocytic infiltration. Acid fast bacilli present in sections.

Lungs—Section shows greatly thickened pleura with a pink fibrinous exudate on the surface with many small typical tubercles scattered throughout the pleura. The lung shows atelectasis and early fibrosis and very infrequent tubercle formation. Acid fast bacilli present in sections.

Oesophagus—The mucosa is deficient over the major portion of the section. The submucosa shows marked venous engorgement and dilatation.

Liver—Section shows pronounced fatty degeneration. There is a marked increase in fibrous tissue (cirrhosis) with a portal distribution. Some

of these fibrosed areas show tubercle formation.

**Gall Bladder**—The tissue between the gall bladder and liver shows numerous tubercles some of which show central caseation. Acid fast bacilli present in sections.

**Summary** — Generalized miliary tuberculosis. Tuberculous pleurisy with effusion. Tuberculous pericarditis with effusion. Tuberculous peritonitis with effusion. Tuberculosis perisplenitis. Advanced portal cirrhosis with ascites and oesophageal varices. Fatty degeneration of liver. Nodular hyperplasia of the prostate.

### **Cirrhosis of Liver** **History**

The hard wrinkled, shrunken organs were described by Vesalius who considered the nodules to be tubercles.

In 1793 Mathew Baillie differentiated cirrhosis from tumor and noted its frequency in users of alcoholic beverages.

In 1819 Laennec proposed the term cirrhosis.

### **Definition**

Cirrhosis is a condition in which there is a progressive destruction of the liver cells with attempts at regeneration and a real or apparent overgrowth of the connective tissue.

### **Classification**

Most examples can be placed in one of the following categories:

#### **I. Portal Cirrhosis**

Here obstruction to the portal circulation is a regular feature of the advance stages. It is the end stage of the various toxic, infectious, nutritional or circulatory disturbances. It is the most frequent form encountered.

#### **II. Toxic Cirrhosis**

This is the late result of necrotizing lesions of the liver. There is death of liver cells and condensation of the stroma. The liver becomes small and extremely irregular. These changes, however, may cause no symptoms and be recognized only at autopsy.

#### **III. Biliary Cirrhosis**

This is the result of biliary obstruction. This causes inflammatory changes and fibroblastic proliferation in the portal areas around the bile ducts. The severity of the lesion depends on the degree and duration of the obstruction and the presence or absence of infection.

Such varieties as "cardiac cirrhosis," Schistosoma cirrhosis, etc., are really variants of portal cirrhosis and do not merit a separate category.

### **Etiology**

It has now become evident that in most instances cirrhosis is not produced by any single agent but is the end result of a number of causes which are active over a long period of time. The possible relation of the various factors are discussed under separate headings.

### **I. Chemicals**

(a) **Alcohol**—The time has come when this fallacy should be dismissed. The name "alcoholic cirrhosis" is so firmly entrenched that to many it has a synonymous meaning with portal cirrhosis. This belief persists despite the demonstration that cirrhosis is by no means rare among individuals who do not use alcohol or in countries (Syria) where use of alcoholic drinks is almost unknown. Recent efforts to explain the higher incidence of cirrhosis in alcoholics have centred largely on the known relation of alcoholism to dietary deficiencies—for experimentally large amounts of alcohol have failed to produce cirrhosis.

It can be shown experimentally that deficient diets will produce cirrhosis and that the process will be accelerated by the addition of alcohol. Alcohol probably causes relative anoxia of the liver cells, interfering with carbohydrate metabolism and fat oxidation by its action as a cell and tissue toxin. The respiratory quotient falls and decrease in the combustion of fat leads to its accumulation in the liver. This not only results in a depletion of glycogen, thus rendering the liver cells more susceptible to injury, but also has the mechanical effect of causing pressure atrophy and necrosis of the hepatic parenchyma.

Summarily alcohol may be incriminated easily as a secondary factor in those who drink heavily and have inadequate diets or perhaps inducing metabolic disturbances of liver cells which lead to excessive fat deposition, which may, in turn, cause cirrhosis.

(b) **Other Chemicals**—Moon lists several, the commoner ones often acting in combination, e.g., phosphorous and alcohol, manganese chloride with phenylhydrazine, carbon tetrachloride, and certain tars. Chemically, however, the important substance is arsenic.

### **II. Infections**

(a) **Syphilis**—Although statistically incriminated, it is probable that lues plays no significant part in the development of cirrhosis. There is nothing about the pathologic changes in syphilis to lead to the conclusion that syphilis can cause a lesion of the liver typical of cirrhosis. The association of the two diseases in the one individual is admitted but a relationship is not established.

(b) **Malaria**—Reports on the incidence of cirrhosis with malaria range from 9 to 84% and some have postulated a specific malarial cirrhosis. There is no proof in pathologic studies (Terumurti and Rao) that malaria will produce cirrhosis.

(c) **Tuberculosis**—In previous years tuberculosis was noted with varying frequency in association with cirrhosis. However, although the incidence of tuberculosis has decreased cirrhosis has not—and there is no proof that tuberculosis has any etiologic relationship directly (perhaps indirectly through malnutrition).

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(Horton, Ryan & Reynolds, Proc. Staff Meet., Mayo Clin., 23:105, 1948)

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(Hansel, Ann. Allergy, 6:155 — 161, 1949)

➡ . . . "CAFERGONE . . . definitely seems to be an excellent preparation to use to abort headaches, especially those of the migraine and histaminic cephalgia types" . . .

(Ryan, Postgrad. Med., 5: 330, 1949).

*Literature and samples available on request.*

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391 ST. JAMES STREET WEST

MONTREAL, P.Q.



(d) **Schistosomiasis** — Infestation with *Schistosoma mansoni* may readily lead to hepatic cirrhosis.

(e) **Bacterial and Viral Infections** — There is some indication that infection of various types may play some part in causing human cirrhosis. How often this occurs, however, and how important infectious diseases are in cirrhosis as a whole, are difficult to state. Clinical experience does not indicate that the role of infection is often of great significance on the development of cirrhosis.

### III. Metabolic and Endocrine Disturbances

(a) **Diabetes** — Experimentally depancreatized dogs maintained on insulin often develop cirrhosis. This, however, is thought to be secondary to marked fatty infiltration of the liver which follows this procedure—and in human diabetes it is likely that the associated disturbances of lipid metabolism which may occur are likely the cause of the cirrhosis.

(b) **Hyperthyroidism** — The mechanism of the hepatic disturbance in hyperthyroidism has not been completely explained. These changes range from acute degenerative lesions to subacute toxic atrophy and toxic cirrhosis. Depletion of liver stores of glycogen and protein is probably a factor, as well as a possible direct toxic action of thyroxine, and although thyrotoxicosis is responsible for relatively few instances of cirrhosis it may be quite important as a causative factor in individual cases and should receive careful consideration in the study of the cirrhotic patient.

### IV. Constitutional Factors

Choostik proposed that men with deficient body and axillary hair with a feminine pubic distribution were more susceptible. This is statistically not true.

### V. Chronic Passive Congestion

In a vast majority of cases the livers of patients who have had chronic heart failure may be better designated "cardiac fibrosis" rather than "cardiac cirrhosis" (Waller and Blumgart). It has been concluded that repeated bouts of decompensation favor the production of cirrhotic lesions which may result in ascites, jaundice and splenomegaly, however, it is the question of definition which is all important. The predominant change is passive congestion, central degeneration, with some increase in the connective tissue may occur and during compensation some regeneration may be seen—yet if one insists on three of these features true portal cirrhosis of congestive etiology is extremely rare.

### VI. Biliary Obstruction

Uncomplicated biliary obstruction is an infrequent cause, but the addition of infection makes it significant in a few cases.

### VII. Splenic Disease

There is no proof that any influence of the spleen (e.g. Bantis disease) can induce hepatic cir-

rhosis.

### VIII. Antecedent Acute Liver Disease

Episodes of acute hepatitis (infectious or toxic) are noted with varying frequency in the past histories of patients with cirrhosis and their importance should not be minimized in individual cases. Repeated damage to the hepatic cells, or failure in recovery from acute injury because of unfavorable nutritional factors, may result in permanent damage to the liver and resultant cirrhosis.

### IX. Nutritional Factors

The question of hepatic infiltration with fat is important because of the possibility that this represents a stage in the development of cirrhosis. In dogs a continued high fat diet will induce cirrhosis. In humans the counterpart may be seen in the fatty livers of starvation, diabetes and alcohol. In humans cirrhotic changes can be induced by restriction of Vitamin B components and certain amino-acid (Choline, methionine, and casein).

### Pathogenesis

Liver cells are destroyed by one of the agents capable of doing this. If the amount of destruction is slight, and if there has been no stimulus to the connective tissue, regeneration is usually complete and the organ is restored to a healthy state. If, on the other hand, damage is extensive, there may be marked hyperplasia of the liver cells in reaction, and islands of new hepatic cells are formed. The connective tissue grows with the new liver cells, both as a stroma for their support and as part of an inflammatory process. The nodules of newly formed liver tissue are not provided, however, with normal vascular channels of bile ducts. If the original injury to the liver is repeated or protracted, these young cells also fall victim to the degenerative process, die, and are succeeded by a new crop of cells. More connective tissue is called forth to support these. Successive cycles result in more and more connective tissue until finally a tremendous amount has been produced—with resulting disturbances of liver architecture.

### Pathology

(a) **Size:** Varies widely, 800-4000 grams.

(b) **Appearance:** Capsule usually somewhat opaque and thickened surface finely or (more rarely) coarsely nodular.

(c) **Liver cuts** with increased resistance and is tougher than normal. Cut surface shows parenchyma divided into compartments which may be large or small.

(d) **Microscopic:** Various combinations of atrophic degeneration and fatty changes of the liver cells and increase of fibrous tissue. In early active cases the connective tissue shows an inflammatory reaction. There is a marked distortion of liver architecture and changes in the arrangement of the blood vessels so that often the small portal radicles and central vein are closer together or

seemingly reversed. There may be varying proliferation of bile canaliculi to accompany the new lobules.

#### Statistical

(a) **Incidence:** Cirrhosis is seen in from 1 to 3% of cadavers at routine autopsy.

(b) **Age:** A disease of late middle life—the 6th decade.

(c) **Sex:** Incidence is 3 times as common in men.

(d) **Racial:** Italian and Irish races show the highest incidence; however, environment undoubtedly plays a part here.

(e) **Occupation:** More frequent in those coming in contact with alcohol socially or otherwise.

#### Clinical Features

It is a very insidious disease, smouldering for years; the period during which cirrhosis presents a fully-developed clinical picture is but a fraction of the entire life history of the disease. It may run its course or be arrested while still in its latency.

**I. Initial Symptoms:** Abdominal swelling is the commonest (28.7% of cases) followed by pain, hematemesis, dependent edema. Nausea and vomiting with weakness are of somewhat lesser frequency. Gastro-intestinal symptoms are often prominent among the earlier manifestations and are experienced as indigestion, flatulence, coating of the tongue, nausea, anorexia and vomiting (often in the morning) and leading to marked weight loss.

**II. Ascites:** Seen in 50-78% of all patients and oftener in these that die of uncomplicated cirrhosis. Being so frequent a presenting symptom one must evaluate the various causes of ascites. These are: (a) **Inflammatory** (bacterial, chemical, or mechanical); (b) **Venous obstruction**—Interference with portal return either in the peritoneal cavity or the liver itself. Cirrhosis is the commonest hepatic cause of ascites; (c) **Lymphatic Obstruction**—Lesions involving the mesenteric lymphatics, receptaculum chyli or thoracic duct can lead to chylous ascites; (d) **Plasma Albumen Deficit** due to deficiency in diet, impaired protein absorption, intra hepatic disease with impaired protein manufacture, loss in ascitic fluid, urine, feces, hemorrhage, and also increased consumption in fevers, burns, etc.; (e) **Others**—Ruptured Viscus—"bloody" ascites; Meig's Syndrome (Ovarian fibroma); Malignant tumors.

**II. Collateral Circulation:** (a) At the oesophagus and the anus. (b) At the umbilicus—"Caput Medusae."

(c) Where the peritoneal organs have become secondarily retroperitonealized, e.g. duodenum, ascending and descending colon.

**Hematemesis:** Occurs in 25% of all cases and is responsible for 10-25% of deaths.

The Caput Medusae is rare. Infra red photography will help detect early cases.

**IV. Jaundice**—Slight icterus is frequent; seen in 50-65% of all cases. Icterus and ascites are in frequent association but jaundice is rarely prominent in the preascitic stage. It characteristically fluctuates and may even disappear. It is largely due to dysfunction of liver cells rather than biliary obstruction.

#### V. The size of the Liver.

There is no characteristic size in cirrhosis. Generally it depends on the amount of fat present in it. It is enlarged at some stage in 60-80% of cases.

#### VI. Splenic Enlargement.

The spleen is enlarged in 80% of cases but often undetected due to the presence of ascites. It may occur in any stage, commonly late. Evidently it is due to portal hypertension for it will regress after a marked hemorrhage.

#### VII. Skin Lesions.

Telangiectasia is relatively common. The "spider nevus" (usually over the sternum, thorax and shoulders) is said to be characteristic. It has been shown experimentally and clinically that they are associated with high blood oestrogen levels which are the result of impaired liver function.

"Liver palms" are seen in active cirrhosis, but are not confined to that disease.

#### VIII. Other Features are:

1. Abdominal pain in one-third of cases and may be due to perihepatitis and perisplenitis.

2. Hemorrhagic phenomena—epistaxis is common and likely the result of a local vascular disturbance.

3. Edema—Is not due to ascites, but rather the hypoalbuminemia.

4. Hydrothorax—Seen in 10% of cases and may be bilateral. It is mostly secondary to the low blood albumin.

6. Fever is frequent but of low grade in the absence of a complicating factor.

#### Complications

**I. Acute Infections**—Cirrhotics are particularly susceptible and these are often terminal.

**II. Tuberculosis**—12-14% of deaths in cirrhotics were associated with pleural or peritoneal tuberculosis (Eppinger, Rolleston and McNee).

**III. Hernias**—are common especially in the ascitic stage.

**IV. Hepatoma**—primary cancer is unusual but an important complication.

#### V. Thrombosis of the portal vein.

**VI. Peptic Ulcer**—The association of cirrhosis and peptic ulcer is frequent (14%).

#### Causes of Death

Pneumonia and intercurrent infections are of the commonest cause of death.

Of the liver deaths one-third die of hemorrhage from varices and two-thirds of progressive hepatic insufficiency.

A MODERN CONCEPT OF

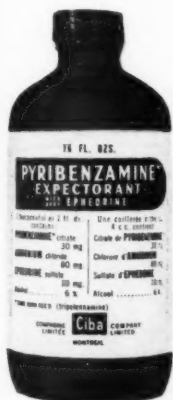
# Active Cough Control

**PYRIBENZAMINE EXPECTORANT**  
*has been designed, for the active control of coughs  
particularly those of bronchial and allergic origin.*

Each fluid ounce of PYRIBENZAMINE EXPECTORANT  
contains:

Pyribenzamine Citrate	- - -	240 mg.
Ephedrine Sulfate	- - -	80 mg.
Ammonium Chloride	- - -	640 mg.

The PYRIBENZAMINE content combats the congestive effect of histamine, reduces the sensitivity of the mucous lining and acts synergistically with ephedrine to promote decongestion of the entire respiratory tract. In addition to its therapeutic efficacy, PYRIBENZAMINE EXPECTORANT'S pleasant taste and colour are welcomed by patients of all ages.



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**EXPECTORANT**  
WITH EPHEDRINE

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<sup>\*</sup>Ciba's brand of tripeleannamine hydrochloride

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With the availability of **NEURO-TRASENTIN 'FORTE'** in addition to **NEURO-TRASENTIN**, every physician treating spastic conditions now has a valuable alternative form of administration at his disposal. Both forms combine, though in different proportions,\*\*

the powerful relaxing action of Trasentin on smooth muscle with the sedative effect of phenobarbital. Both act quickly and safely to relieve pain and discomfort.

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**NEURO-TRASENTIN** is indicated; when additional control of spasm is desired without increased sedation, **NEURO-TRASENTIN 'FORTE'**.

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\*\*Each **NEURO-TRASENTIN 'FORTE'** tablet contains 50 mgms Trasentin and 20 mgms phenobarbital.



 **NEURO-TRASENTIN**

 **NEURO-TRASENTIN**  
**"FORTE"**

**Ciba**

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## EDITORIAL

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J. C. Hossack, M.D., C.M. (Man.), Editor

### Educating the Public

The following editorial from the Vancouver Medical Society Bulletin is a very sensible criticism of propaganda methods. Not only cancer but other ailments also are being given the wrong sort of advertisement. The public have become altogether too health—or rather ill-health—conscious. They read that so many out of ten will die of cancer or heart disease or of diabetes and so on. They overlook the fact that ten out of ten will ultimately die in any case.

The sense of death lies most in apprehension, and so multitudes, made fearful by advertisements and articles, anticipate the distresses of their necessary end. The cat's nine lives could not save it from the mortal effects of care; and the anxious, the apprehensive, the fearful amongst men and women find their days shortened and their agony prolonged by anguish and uncertainty.

There should be a ban against health articles and on scare-head propaganda. "Of all pursuits the pursuit of health is the most unhealthy." It should be discouraged. The only thing a layman need know is the name of his doctor and the only thing he need do is seek advice when he is not well. So long as one is unaware of his somatic or visceral activities he needs no attention, when these activities obtrude themselves upon his consciousness he should see his doctor at once. The less he knows about physiology the better. His little learning, self applied, is his greatest danger.

♦

\*We noted in a press dispatch, that the Canadian Cancer Society is embarking on a more active campaign of education of the public, in the matter of early diagnosis of cancer. They propose, we understand, to use radio, the press, and other agencies.

This is very praiseworthy, if it is properly done. We must confess that we have our doubts occasionally about the style of programme that is adopted. Listening the other night to a radio cross-talk between two speakers, on one such programme, we were impressed by the rather scare-head nature of the dialogue. The terrors of cancer, the evil results of delay, were emphasized more than we thought was wise or advisable. Rather would we have heard emphasis laid on the curability of cancer, and the great benefits, in prospect of health, in peace of mind and happiness, that would come from constant vigilance and early application for medical examination. This may

seem like carping, but it is not. We need to encourage the public to think more in positive terms of success and hopefulness, and less in terms of despair and hopelessness. It never pays to try to scare or stampede anyone into the doctor's office and the operating room.

Listening to Dr. McKelvey, who spoke—as our readers will remember—at the recent Vancouver Medical Association Summer School, we were much impressed by some remarks he made. He said that in his experience, public education along lines of cancer prevention and early diagnosis, were largely futile: that as far as his experience went, it had had little or no effect, in the many years in which it has been on trial, in lessening the mortality rate of cancer, or in inducing people to seek advice early. Coming from a man with the vast clinical experience of Dr. McKelvey, this is a very grave indictment, and when one thinks of the matter, it is probably perfectly true. He went on to say another thing, which should sink very deeply into the minds and consciences of every one of us—that the remedy for lateness in diagnosis, and the responsibility for early diagnosis, lie with the medical man who sees the patient. He pointed out the absolute necessity for thorough, painstaking examination of every case presenting any abnormality—for biopsy (he was speaking at the time of carcinoma of the uterus and its cervix). He reminded us that biopsy can be done as an office procedure, that cervical erosion and cancer can be absolutely differentiated. This means that we must take steps to differentiate them. This applies, of course, to other lesions that may be cancerous.

As a profession, and this applies especially to the general practitioner, we must continually be thinking of cancer, in every patient we see. As a student, we remember being told that we must never forget the possibility of syphilis, in every case we saw. Today we must attain the same degree of awareness and wise suspiciousness, in regard to cancer. The gloved finger, the speculum, the biopsy knife or punch—the routine examination of the breast in every woman over thirty or thirty-five, even in the absence of complaints or suspicion on the part of the patient. These things are all part of our office equipment and our personal capacity. Just as we use the blood pressure apparatus in almost every case we examine, so we should use these other methods—should have a proctoscope and know how to use it, and so on. Only thus shall we be able to beat the patient to it, and to pick up the suspicious case while yet the suspicion is only in our minds, and not in that of the patient.

\*Reprinted from the Bulletin of the Vancouver Medical Association, June, 1949.



## ***NOW..*** ADDED CONVENIENCE FOR THE PATIENT

The "RAMSES"\* "Tuk-A-Way Kit" provides added convenience for the patient, for tucked into this colorful, washable plastic kit she will find all the units essential for optimum protection.

The Tuk-A-Way Kit packs inconspicuously in the corner of a travelling bag or dresser drawer. It is available to patients through all licensed pharmacies.



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## COMMENTS

### The Chiropody Clinic\*

Outpatient Department, Vancouver General Hospital

Just a year ago, the Vancouver General Hospital embarked on an experiment by adding to its series of Clinics in the Out-Patient Department, a Chiropody Clinic. This is the first time in Canada that a General Hospital has installed such a clinic—though a Chiropody Clinic has been an integral part of the establishments of a great number of large hospitals in the United States. Almost all the major hospitals have such a clinic, and, in letters written by them, describe it as of the greatest value, and indispensable, especially in the treatment of vascular disorders, diabetes, and the like.

The Clinic was installed and equipped fully, without a cent of expense to the Hospital itself—the Chiropodists' Association of B.C. contributing a total of \$1,694 to its establishment and equipment. The work in it has been done, on a 2-day-a-week basis, by Vancouver Chiropodists, who have worked loyally and well, without, of course, any remuneration.

It will be of interest to our readers to have a brief report of the work of this Clinic, and an evaluation of the importance of this work to, first, the patients concerned; secondly, the Hospital, and thirdly, the medical personnel of the Clinics who refer cases to it.

There has been a total of 1689 treatments given during the first year. This will work out at about 15 a day—and this is a large number of patients to be handled in the time allotted.

From the point of view of the patients, there is no doubt that they are exceedingly grateful and appreciative, and have expressed themselves to this effect especially. Apart from the now important vascular conditions, such as diabetes, there are a great many more or less minor conditions which still make life miserable, such as excrescences, nail conditions, ulcers, weak and strained foot conditions, bunions and so on. These have all been treated with marked success.

From the point of view of the medical personnel, the best proof of their opinion of the Clinic is the continually increasing number of cases referred to the Clinic by such departments as those dealing with diabetes, peripheral vascular diseases, orthopaedics and so on. The Surgical, Gynaecological, Dermatological, Cardiac, Arthritic and General Medical Clinics have all referred cases, and there have been many referred by doctors in private practice.

Some of the notes on the patient's charts are illuminating in this regard.

"Legs appear much better since attending Chiropody Clinic."

"I am referring this patient to the Chiropody Clinic. He eats too much garlic, and I can stand him no longer."

Many cases have been referred for additional study and diagnosis by the chiropodists in attendance, with gratifying results.

The relations between the staff of the Chiropody Clinic and the medical staff of the Out-Patient Department have been of the most cordial and friendly character, and co-operation has been given most freely by both sides. Dr. J. Moscovitch, Chief of the Out-Patient Department, gives it as his opinion that the Clinic has been of very great value to the Hospital, that the Chiropodists in attendance have played the game at all times, that the patients are satisfied and delighted with the attention that they receive. The nurses of the Clinic, he states, find the members of the Clinic most co-operative and kindly to the patients.

Dr. J. R. Neilson, formerly Chief of the O.P.D., also expressed it as his opinion that the Clinic is doing an immense amount of good.

Dr. J. S. T. Sarjeant, Director of the Peripheral Vascular Diseases Clinic, also stated that he was very much pleased with the work done by the Chiropody Clinic, and that he felt that they did work that could not be done in any other way, by their painstaking attention to detail.

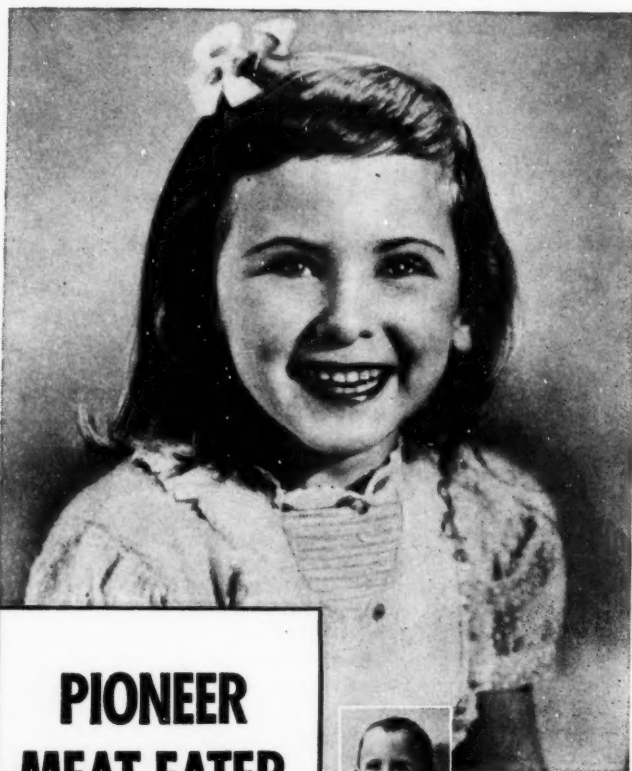
There can be little doubt, therefore, that the establishment of this Clinic has been a decidedly forward step, and that, as the years go by, it will more and more prove to be not only of value, but an absolute necessity, to the working of the Vancouver General Hospital.



### Would You Believe It?

There are some of our own members who tell us that, before any extension of the Manitoba Medical Service to include rural Manitoba may be successfully undertaken, the first phase will be to secure the consent and co-operation of the medical profession. Isn't it incredible that a movement which was sponsored in this Province by the same profession and which has been in operation for several years should require any introduction to the profession at the present time. "Parents, like poets, have great regard for their rickety offspring"—and when another organization enters the field under the guise of a non-profit association but operating under the federal or provincial insurance regulations, it should make us look to our laurels! "Imitation is the sincerest form of flattery" and when a contract offered to the public, urban or rural, embodies the best features, including a

\*Reprinted from the Bulletin of the Vancouver Medical Association, June, 1940.



## PIONEER MEAT EATER

*(5 years later)*



*Five years ago, little Betsy Traynor was a participant in Swift's Meats for Babies first feeding test.*

WAY back when Betsy started Swift's Meats, meat was a "revolutionary" food for a baby. Betsy and her fellow participants were the first babies *ever* to eat Swift's specially prepared strained meats.

Betsy's bubbling good spirits and sound, sturdy development testify to the benefits of regular meat-feeding early in life. And Betsy's mother will tell you, "She's the very picture of health!"

Today any baby can have the same

right start in life that lucky little Betsy had. Doctors recommend Swift's Meats for Babies now in the early weeks of life—to provide the complete high-quality proteins and iron every infant needs.

Swift prepares an appetizing variety of: beef, lamb, pork, veal, liver and heart—to help infants form sound eating habits.

Swift's Meats for Babies are expertly trimmed to minimize fat content—carefully cooked to preserve a maximum of essential meat nutrients. Swift's Strained Meats for Babies—Diced Meats for Juniors—are convenient and economical, cost less than home-prepared meats.

## Current Clinical Meat Feeding Studies

REPORT NO. 1

### MEAT FOR ALLERGY FEEDING

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This study on the nutritional value of a meat formula is part of an extensive clinical research program now being conducted through grants-in-aid made by Swift's.



# SWIFT

*...foremost name in meats*

*...first to develop and clinically test 100% Meats for Babies*



*All nutritional statements made in this advertisement are accepted by the Council on Foods and Nutrition of the American Medical Association.*

replica of the fee schedule, of our own profession-sponsored plan, we should feel highly elated, but we should also resolve to get behind our own Manitoba Medical Service plan and boost it, offering constructive criticism and seeking to prevent abuses which bring the plan into disrepute of public and/or profession. "Chins up"—a little competition never hurts anybody and surely YOUR plan is worthy of the unstinted support you may give it! Does extension of Manitoba Medical Service to include the rural areas require enlightenment of the profession at this stage?

**Would you believe it? Do you?** M.T.M.

### Automobile Licenses

This year a new system of licence plate numbers came into effect. Advance reservations were accepted for a limited period. The new series allotted to the medical profession was 1 D 1 to 1 D 999. Through death and removal from the Province of those who held a certain licence number in the four thousand series all plates were not assigned. In the introduction of the new series numbers were issued by the Department in the order in which the applications were received, and it was not possible to comply with all the individual requests. Otherwise, there would have been blank numbers which would have been assigned to non-medical personnel, and the distinctiveness of the series would have been lost.

M.T.M.

### Spotlights

At the last session of the provincial legislature an amendment to the Highways Traffic Act was passed limiting the number of lights which might be affixed to a motor vehicle and precluding the use of moveable searchlights. Circumstances in which it was considered "in the public interest" to allow use of spotlights were recognized, and ambulances, fire-fighting vehicles, police vehicles, power or telephone repair crew vehicles and garage vehicles removing stalled or damaged cars were exempt from the regulations. Absolute discretionary power was given to the Commissioner of Taxation to review any application for a special permit and to grant same only if he was convinced that it was in the public interest to grant same, then only after he had received assurance that the greatest possible care would be exercised in the use of same. Before the introduction of restrictions, it was alleged that other members of the family, not necessarily those of physician's alone, used the lights indiscriminately along the highways, thereby endangering life and limb of others. It is understood that many members of the profession applied for a special permit but that in most cases the reason given was not

considered sufficient to warrant issuance. It is recognized that many streets in Winnipeg and throughout the province are poorly named or the name is absent altogether, many are poorly lighted, or not at all, and house numbering is absent, inconspicuous or poorly illuminated. Doctors making emergency calls in the middle of the night do have difficulties locating numbers, but taximen and deliverymen make the same protest. In many cases, the taxi has been called to transport a patient to hospital, but the call is not as apt to be as emergent as that of the physician. Arguments in favour of revision of the Act to allow members of the profession to use spotlights will have to convince the Commissioner of Taxation, the Attorney General and the Provincial Legislature.

M.T.M.

### Dr. W. T. Dingle Honored

Dr. William Thomas Dingle, Winnipeg General Hospital, and Dr. Thomas Glen Stoddart, Ottawa Civic Hospital, have been selected as British Empire Cancer Campaign Exchange Fellows for 1950-51, the National Cancer Institute of Canada announced today.

Drs. Dingle and Stoddart are both radiotherapists and during their Fellowships will study methods of radiotherapy in Great Britain.

The British Empire Cancer Campaign Exchange Fellowships were first established in 1949. Two Fellowships a year are available to Canadians on an exchange basis with the official agency in England concerned with cancer. These fellowships afford opportunities for advanced training and experience in Great Britain in specialized fields of investigation pertaining to the problem of cancer and are offered to Canadians interested in the clinical and allied sciences or in fundamental research. Dr. Clifford L. Ash of the department of radiology and Ontario Institute of Radiotherapy, Toronto General Hospital, and Dr. Jean Michon of the department of radiology, Notre Dame Hospital, Montreal, were the first two recipients of these fellowships and are presently pursuing their studies in Great Britain.

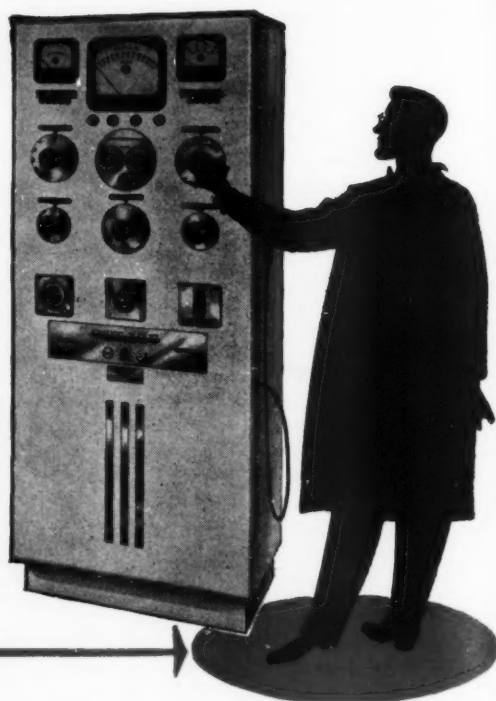
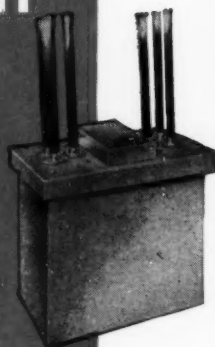
### Sandoz Pharmaceuticals Ltd.

are located at

391 St. James St. W., Montreal

In our November issue we erred in publishing an old advertisement which gave the above client's address as: Sandoz Pharmaceutical Dept., The Wingate Chemical Co. Ltd., 378 St. Paul Street West, Montreal. We regret this error occurred as Sandoz are no longer represented by the Wingate Chemical Co. but have been operating their own plant and distributing their products directly from the above address for over a year.

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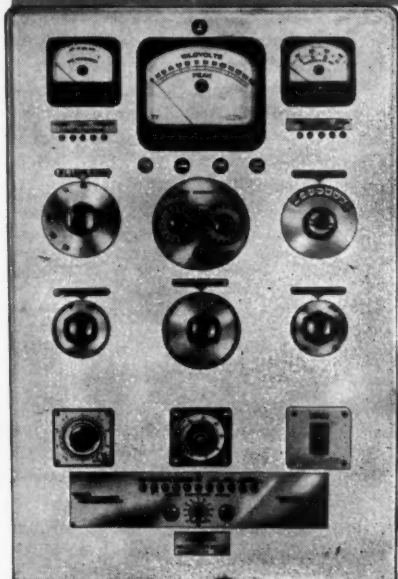


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The NEW KELEKET Vertical 300 MA Multicron

300 MA at 125 KVP

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In the modern x-ray laboratory, being on the spot beside the new Keleket 300 MA Multicron is a sure method of offering increased service and facilities to patients.

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DIAGNOSTIC RATING: 300 milliamperes at 125 peak kilovolts to meet any present day high voltage technique requirements. Fixed milliamperage control and a unique electronic-mechanical timer makes operation outstandingly simple . . . results extremely accurate in every technique.

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## ASSOCIATION PAGE

Reported by M. T. Macfarland, M.D.

### To the Secretaries of Divisions

January 20th, 1950.

Dear Doctor Macfarland:

Please find a copy of a document entitled, "Income Tax Information." The basis of this statement is the Memorandum on Income Tax Returns jointly sponsored by the Canadian Medical Association and the Department of National Revenue, the last issue of which was dated February, 1943. The information here presented applies to income tax returns rendered by members of the medical profession in respect to the taxation year 1949. In consultation with officials of the Department of National Revenue we have endeavoured to incorporate all of the important changes which have taken place since the original memorandum was issued, and to present the facts applicable to current returns.

I would particularly call to your attention the new and somewhat complex system of calculating depreciation on capital assets, which is known as "Capital Cost Allowance" and is summarized on pages 2, 3 and 4 of this document.

The other important changes relate to the claiming of expenses in relation to the operation of a motor car in medical practice. **Doctors are no longer permitted to claim expenses on a mileage basis**, and all claims for the operation of a motor car must be made on the basis of actual costs of operation, plus depreciation. You will note that **no reference is made to any maximum figure for the cost of a motor car upon which depreciation will be allowed.** Doctors replacing their present motor cars will be permitted to claim depreciation under the capital cost allowance system for the actual cost of the vehicle.

You will note further that the **figure of 75% of the total mileage of a car operated partly for professional and partly for personal purposes is no longer referred to.** In place of this the statement is made that **only that portion of the total automobile expense incurred in earning the income from practice may be claimed as an expense**, and therefore the total expense must be reduced by the portion applicable to personal use. In certain instances this will permit a doctor to claim in excess of 75% of his total motor car expenses, while in other cases the portion applicable to practice may be considerably below this figure.

It is proposed to publish this information concerning income tax returns in the March issue of the Canadian Medical Association Journal, and you are at liberty to utilize it for the notification of your members in any other manner which may be available to you.

The Committee on Income Tax of this Association has recently made representations to the responsible ministers with respect to post-graduate expenses, retirement funds, and other matters of interest to the members of the medical profession. It is not possible to estimate at this time the results of these negotiations, and returns from the medical profession for the year 1949 will be made in accordance with the provisions of the attached memorandum.

Yours faithfully,

A. D. Kelly,  
Assistant Secretary.

### Income Tax Information

Individuals whose income—(a) is derived from carrying on a business or profession (other than farming); (b) is derived from investments; or (c) is more than 25% derived from sources other than salary or wages, are required to pay their estimated tax by quarterly installments during such year. Each payment must be sent in with Installment Remittance Form T.7-B Individuals. Any balance of tax is payable with interest with the T-1 General return which is due to be filed on or before April 30 of the succeeding year.

The following timetable indicates the returns required.

A. Doctors NOT receiving salaries amounting to  $\frac{1}{4}$  of income:

Date Due	Forms to be Used
March 31 .....	T. 7-B Individuals
April 30 .....	T. 1-General
(Note: Only doctors deriving their full professional income from salaries may use Form T. 1 Short.)	
June 30 .....	T. 7-B Individuals
Sept. 30 .....	T. 7-B Individuals
Dec. 31 .....	T. 7-B Individuals

B. Doctors receiving salaries amounting to  $\frac{1}{4}$  or more of income:

Date Due	Forms to be Used
April 30 .....	T. 1-General
(Note: Doctors deriving their full professional income from salaries may use Form T. 1 Short.)	
Whenever Status is changed*	T.D.-1

Doctors who pay salaries to their own employees are required to send in **Form T.-4 by the end of February each year.**

For income tax purposes all salaries are net. Therefore doctors must pay tax on the total amount they receive as salary. Doctors are urged to arrange with their employers that such items as automobile expenses and medical association fees, be paid by the employer as an item of expense and not included in salary.

\*With respect to new employer, marital status, dependents the annual Income Tax Returns to be filed, the following matters are set out:



## *Even a flood...* failed to stop GE Service!

It was spring in Marietta and the Ohio River was on its seasonal rampage. In fact, its swollen waters were even licking at doorsteps in the busy downtown section — eagerly reaching higher and higher.

Is it any wonder, then, that one of the town's leading x-ray technicians should be alarmed for the safety of her charge — vital, valuable x-ray equipment in the flood-threatened office of her employer, a well-known Marietta doctor. Quite naturally she telephoned GE's Columbus, Ohio office — told of her plight.

GE Service went into immediate action. Checked State Highway Department — found roads to Marietta water-blocked. Then, chartered a plane which landed across the river from Marietta at Williamsburg, W. Va., about an hour later. After reaching downtown Marietta by flatboat and walking a few blocks, the GE serviceman arrived across the street from the doctor's office. However, flood waters blocked the way. This problem was neatly solved when a stalwart dentist friend happened along and volunteered to carry him and his equipment across the street piggy back.

The x-ray equipment was speedily dismantled, loaded on a high wheeled truck and taken to the doctor's home which was located on higher ground.

This story is typical of the hundreds of documented GE Service reports in our files. A service which proudly lends a new, broader conception to the guarantee that stands back of every GE installation.

Don't wait for a flood to call for GE Service...  
it's available always at —

<b>General Electric X-Ray Corporation, Dept. V</b>	
New York City	205 East 42nd St.
Albany	8 Elk Street
Rochester	68 Scio Street
Buffalo	27 Barker Street
Syracuse	1020 West Genesee St.
Winnipeg	402 Graham Ave.

**GENERAL  ELECTRIC**  
**X-RAY CORPORATION**  
LIMITED  
MONTREAL TORONTO VANCOUVER WINNIPEG

### Dominion Income Tax Returns by Members of the Medical Profession

As a matter of guidance to the medical profession and to bring about a greater uniformity in the data to be furnished to the Income Tax Division of the Department of National Revenue in the annual Income Tax Returns to be filed, the following matters are set out:

#### Income

1. There should be maintained by the doctor an accurate record of income received, both as fees from his profession and by way of investment income. The record should be clear and capable of being readily checked against the return field. It may be maintained on cards or in books kept for the purpose.

#### Expenses

2. Under the heading of expenses the following accounts should be maintained and records supported by vouchers kept available for checking purposes:

- (a) Medical, surgical and like supplies;
- (b) Office help, nurse, maid and bookkeeper; laundry and malpractice insurance premiums. (It is to be noted that the Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to the income);
- (c) Telephone expenses;
- (d) Assistants' fees; The names and addresses of the assistants to whom fees are paid should be furnished. This information is to be given each year on Income Tax form known as Form T.4, obtainable from your District Income Tax Office;
- (e) Rentals paid; The name and address of the owner (preferably) or agent of the rented premises should be furnished (see (i));
- (f) Postage and stationery;
- (g) **Depreciation:** Effective with the taxation year 1949, a very significant change has been made with respect to the method of computing annual depreciation charges on capital equipment. This new method is termed **Capital Cost Allowance** and is outlined in P.C. 6385, dated December 21st, 1949. All previous information published to the profession pertaining to depreciation on both

medical equipment and motor cars and on residences used for both dwelling and office purposes should be disregarded.

For the first time, definite rates of depreciation applicable to various kinds of capital assets have been defined. These rates are grouped by classes. The physician will find the following examples helpful as a first step in computing the annual depreciation on his equipment or other capital items:

Capital Item	Class	Annual Maximum Depreciation
Medical Equipment, including electrical apparatus:		
(a) Instruments costing over \$50 each and medical apparatus of every type .....	8	20%
(b) Instruments under \$50 each .....	12	100%
Office Furniture and Equipment .....	8	20%
Motor Car .....	10	30%
Building (Residence used both as dwelling and office):		
Brick .....	3	5%
Frame, Stucco .....	6	10%

Replacing the previous method of charging off depreciation rateably over the estimated life of the asset, the above rates are applied as a percentage of the diminishing value each year.

An instrument acquired at a cost of \$100 will be treated as follows:

Original Cost .....	\$ 100.00
Depreciation 1st year — 20% .....	20.00
Diminished Value End of 1st Year .....	\$ 80.00
Depreciation 2nd year — 20% .....	16.00
Diminished Value End of 2nd Year .....	\$ 64.00
Depreciation 3rd year — 20% .....	12.80
Diminished Value End of 3rd Year .....	\$ 51.20
(Continued until asset reduced to negligible amount)	

The same procedure is applicable to the items of each class mentioned above by applying the correct percentage rate applicable.

To establish the present value of items acquired before the institution of the system of Capital Cost Allowance, the physician should deduct from the original cost the amount of depreciation already claimed.

Reference is made to T.1 General, 1949, Part 4, of which sets forth the procedure to be followed. The relevant schedule is reproduced:

If the dollar amount of the depreciation allowance in respect of the 1949 taxation year under the

Column (1) Class Number or Kind of Asset	(2) Original Cost (excluding land)	(3) Total Depreciation Accumulated for Tax Purposes in Prior Years	(4) Undepreciated Cost at Beginning of year (Col. 2 less col. 3)	(5) Cost of Additions During Year	(6) Proceeds from Disposals During Year	(7) Undepreciated Capital Cost Before 1949 Allowance (Col. 4 plus 5 less 6)	(8) Rate %	(9) Capital Cost Allowance
A motor car 10	purchased \$2,500	in 1947 for \$2,500	and still on \$1,000	hand at end	of 1949:	\$1,500	30%	\$450
A motor car 10	purchased \$2,500	in 1947 for \$2,500	00, sold in 1949 \$1,500	for \$1,500 and	replaced by \$1,500	the purchase of \$2,500	a new car: 30%	\$750



## B-TOTUM CONCENTRATE

with VITAMIN "C"

---

**Formula: each tablet contains:**

Thiamin HCl .....	7.5 mg.
Riboflavin .....	7.5 mg.
Niacinamide .....	20.0 mg.
Pyridoxine HCl .....	.5 mg.
Calcium Pantothenate .....	2.0 mg.
Ascorbic Acid (Vitamin C) .....	160.0 mg.

---

**INDICATIONS:**

Avitaminoses B and C; abnormal nervous, gastric or cutaneous manifestations — neuritis, anorexia, malnutrition, etc.

---

Dosage: 1-3 tablets per day

Bottles of 50 tablets

**DESBERGERS**  
*Limited*

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CANADA

new regulation is less than the allowance that would have been made under the 1948 law and practice, a doctor is permitted to deduct the dollar amount of depreciation for the 1949 taxation year equivalent to the amount which would have been permitted under the 1948 law and practice rather than under the new regulation.

When a doctor uses part of his dwelling as an office the office premises now take a separate cost for depreciation purposes. Where one-third of the total space is occupied as office and waiting-room, the professional quarters in a \$12,000 house is deemed to have a cost of \$4,000. Where a doctor increases his office space in his home, he should consult his local Income Tax Office to determine the basis for depreciation.

(h) Automobile expense; (one car).

This account will include cost of license, oil, gasoline, grease, insurance, garage charges and repairs.

The capital cost allowance is restricted to the car used in professional practice and does not apply to cars for personal use.

Only that portion, of the total automobile expense, incurred in earning the income from the practice may be claimed as an expense and therefore the total expense must be reduced by the portion applicable to your personal use.\*

(i) Proportional expenses of doctors practising from their residence:

(a) Owned by the doctor.

Where a doctor practises from a house which he owns and as well resides in, a proportionate allowance of house expenses will be given for the study, laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, capital cost allowance, and interest on mortgage (name and address of mortgagee to be stated);

(b) Rented by the doctor.

The rent only will be apportioned inasmuch as the owner of the premises takes care of all other expenses. The above allowances will not exceed one-third of the total house expenses or rental unless it can be shown that a greater allowance should be made for professional purposes.

(j) Sundry expenses (not otherwise classified)—The expenses charged to this account should be capable of analyses and supported by records.

\*The alternative method of claiming deductions for the operation of a motor car in practice at a rate of 7 cents per mile is no longer applicable. Physicians must maintain a record of actual operating expense. The mileage rate may be used by the Department only in those cases where it is not possible to determine the actual car expense applicable to the practice.

Claims for donations paid to charitable organizations will be allowed up to 10% of the net income upon submission of receipts to your Income Tax Office. This is provided for in the Act.

The annual dues paid to governing bodies under which authority to practice is issued and membership association fees, to be recorded on the return, will be admitted as a charge. Registration fees for license to practice or other registration or entry fees and the cost of attending postgraduate courses will not be allowed.

(k) Carrying charges: The charges for interest paid on money borrowed against securities pledged as collateral security may only be charged against the income from investments and not against professional income.

(1) Business tax will be allowed as an expense, but Dominion, Provincial or Municipal income tax will not be allowed.

### Convention Expenses

"Effective January 1, 1948, the reasonable expenses incurred by members of the medical profession in attending the following Medical Conventions will be admitted for Income Tax purposes against income from professional fees:

1. One Convention per year of the Canadian Medical Association.

2. One Convention per year of either a Provincial Medical Association or a Provincial Division of the Canadian Medical Association.

3. One Convention per year of a Medical Society or Association of Specialists in Canada or the United States of America.

The expenses to be allowed must be reasonable and must be properly substantiated; e.g., the taxpayer should show (1) dates of the Convention; (2) the number of days present, with proof of claim supported by a certificate of attendance issued by the organization sponsoring the meetings; (3) the expenses incurred, segregating between (a) transportation expenses, (b) meals and (c) hotel expenses, for which vouchers should be obtained and kept available for inspection.

None of the above expenses will be allowed against income received by way of salary since such deductions are expressly disallowed by statute."

### Professional Men Under Salary Contract

3. Under the provisions of the Income Tax Act the salary paid to a doctor is taxable in full without any allowance for the deduction of automobile expenses, annual medical dues or other expenses. The employees' annual contribution to an approved Pension Plan and alimony payments, however, may be deducted from salary.

## CLINICAL EVIDENCE...

**Neohetramine prevented the development of the common cold in 95% of 300 subjects during a six month period October 1948—April 1949.**

ARMINIO & SWEET, INDUSTRIAL MED. DEC. 1949.

### No side reactions

"Throughout the entire course of Neohetramine prophylaxis there were no manifestations of toxicity . . . as described with other antihistaminics."

### Early administration is essential

Arminio, Murray and Brewster all reported excellent results when an antihistaminic was administered at the first signs of a cold. Brewster, commenting on "the phenomenal cure of the very early colds" with antihistaminic therapy, concluded that "if properly and universally used, the antihistaminics could reduce the incidence of colds to near the vanishing point."

### Dosage

Neohetramine 100 mg. daily in divided doses. 25 mg. before each meal and at bedtime or 50 mg. twice daily. In patients known to be unusually susceptible to colds, Neohetramine may be used daily as a prophylactic measure during the fall, winter and spring months.

## Neohetramine TABLETS

THONZYLAMINE HYDROCHLORIDE



Registered Trade Mark

25 mg. Bottles of 25, 100, 1000

50 mg. Bottles of 100, 1000

100 mg. Bottles of 100, 1000

JOHN WYETH & BROTHER (CANADA) LIMITED

• WALKERVILLE, ONTARIO

## SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

Well, it was lovely while it lasted! What peace to read one's self to sleep with a good book, or grim thriller instead of wading through Society Columns, Birth Notices, etc.

Art Childe reports that while in New York recently he saw a nice gadget which I really think the "Review" should present to me, but young David is all for making me one. Bed, reading-table equipped with a switch, so that when the eyes close, the hands and book or paper fall, the lights automatically go out. Art says if he had known "Fish Leslie" was returning to the job, he might have brought me one.

In the meantime some of your news is old, the babies almost teething, and the honeymoons over but here goes. Apologies to those who are belatedly reported.

Congratulations and good wishes to our old friend, Dr. C. W. MacCharles, who has accepted an assignment with the U.N. He leaves for Korea shortly in the health service department. Dr. MacCharles has been Senior Medical Officer in the Northumberland-Durham Health Unit.

I was thrilled to hear too, that Norm Sloan had been awarded his Master of Science at McGill. Norm has been doing post graduate work in Neurophysiology at the Montreal Neurological, and is at present in New York continuing his research.

Congratulations also to Dr. W. T. Dingle, who has been chosen as a British Empire Cancer Campaign Exchange Fellow for 1950-1951.

A grand opportunity for Tom, but he will be sadly missed—temporarily I hope, in his work at the Forlong Memorial Department.

Dr. W. L. Falconer, remembered as "Lynne," has succeeded Dr. Herbert Meltzer as Medical Director of the Charles Camsell Indian Hospital in Edmonton and reports that he has everything to work with, and hopes to follow up to the "Nth" degree the good organization and spade work that Herb has already accomplished.

Dr. S. S. Peikoff has been appointed Lecturer in Surgery at St. Boniface Hospital, a well deserved honor.

Dr. and Mrs. Darrell F. Osborne and small daughters will reside in Kamloops, B.C.—what a winter to move to B.C.!

Dr. and Mrs. Solomon Kobrinsky, who are holidaying in Florida, expect to be back home early in February.—Florida—Mmmmm.

Dr. and Mrs. A. Moyse, who have been visiting Dr. and Mrs. John Moyse, in Mitcham, England, since early in December, are now in Cannes, France, and Monte Carlo

December 3, 1949, was a big day for weddings.

Dr. Ruth Elizabeth Grahame, daughter of Dr. and Mrs. J. M. Grahame, became the bride of Dr. Robert L. Cooke, son of Dr. and Mrs. R. J. Cooke, Regina.

In London, England, Mabel Alison Chown became the bride of Dr. James Bert R. Cosgrove, son of Mr. and Mrs. J. Sinclair Cosgrove, Brandon, Man. The Groomsman was Dr. E. T. Feldsted and ushers were Dr. Alan Moore and Dr. Bruce Cates. The groom and his attendants are all doing post graduate work in England.

Back in Winnipeg, Naomi Joyce Walters became the bride of Dr. Saul Berger, son of Mr. and Mrs. J. Berger, at a candlelight ceremony in the Shaarey Zedek Synagogue. Dr. and Mrs. Berger are residing in Winnipeg.

In Montreal, December 17, 1949, Mary A. McKenzie, daughter of Mr. and Mrs. Ellice McKenzie, became the bride of Dr. Colin Ferguson, son of the late Colin Campbell Ferguson and Mrs. Ferguson, of Winnipeg. Dr. and Mrs. Ferguson will reside in Boston, Mass., where Dr. Ferguson is on the staff of the Children's Memorial Hospital.

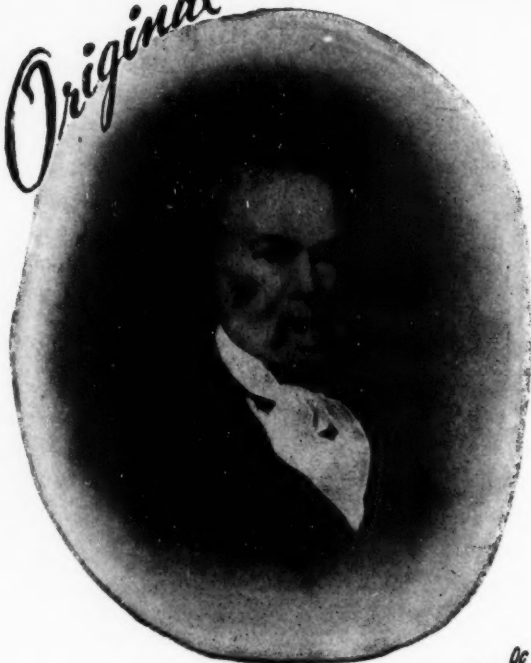
December 27, 1949, Marie Therese Arhez, of St. Claude, Man., and Dr. Francis Patrick Doyle plighted their troth in Holy Cross Church. Dr. and Mrs. Doyle will reside in St. Anne, Man.

January 13, 1950, in Riverview United Church, Marion Isobel De Wolfe became the bride of Dr. Donald Geo. Irving. They will reside in Crystal City.

Dr. Jessie McGeachy, M.D., F.R.C.P. (C.), announces the opening of her office on Borebank St. at Academy Road for the practice of Internal Medicine.

Dr. Saul S. Berger announces the opening of his office at 203 Professional Bldg., Graham Ave. Practice limited to Diseases of the Skin.

*Original*



AS THE SIGNATURE OF

*C. A. Nativelle*

# PIONEER

OF THE ORIGINAL BRAND OF DIGITOXIN

... also known and described as Digitaline Nativelle in the U.S.P.-XIII (Official April 1947). In the year 1868 Digitaline (Digitoxin) was first isolated by Claude Adolphe Nativelle and has been used since that date, as it is today by world renowned clinicians such as: Basil-Parsons-Smith, James Orr, Harry Gold, S. A. Levine, Sir James MacKenzie and many other authorities in the field of digitalis therapy.

## DIGITALINE NATIVELLE

The Digitoxin Original as the Name it Bears.

CANADIAN DISTRIBUTORS

**ROUGIER FRERES**

350 LE MOYNE STREET - - MONTREAL, P.Q.

*Strictly Ethical Preparations.*

Drs. K. Borthwick-Leslie and N. P. Merkeley are moving on Feb. 1 from 311 Medical Arts to 520 Medical Arts.

Dr. Christina Curran, announces the opening of her office at 472 Academy Road, Borebank and Academy. Dr. Curran is limiting her practice to Diseases of Children.

Dr. and Mrs. Stewart McKenty announce the birth of a son, January 15, 1950.

Dr. and Mrs. H. R. MacPhail announce the arrival of Janet, December 17, 1949, at Edmonton.

Dr. and Mrs. Ward Shaver announce the birth of David Bruce, January 13, 1950.

Dr. and Mrs. R. E. Helgason, of Glenboro, Man.,

announce the arrival of a son, Roger Kent, December 28, 1949.

Dr. and Mrs. Wallace Grant, Wildwood Park, are happy to announce the arrival of Sheila Elizabeth, January 11, 1950.

Dr. and Mrs. C. A. Adamson (nee Norma Fonger) announce the birth of Leigh, December 3, 1949, at Stockton, Cal

Congratulations and best wishes to all our new babies and their parents.

The Executive of the General Practitioners' Association will welcome Dr. Gibson Hall, Toronto, speaker at the meeting, January 27, at luncheon at the Winter Club. Organization of our Post Graduate Course for General Practitioners is the main topic of discussion.

## Tentative Program THE AMERICAN GOITER ASSOCIATION

**Thursday, March 9th**

### Morning

**8.00 Registration.**

**9.00 General Session.**

#### **Diagnostic Methods in the Study of Human Thyroid Disease:**

Dr. Elmer C. Bartels,  
"Basal Metabolic Rate and Blood Cholesterol."

Dr. A. Querido,  
"TSH in Differential Diagnosis of  
Hypometabolic State."

Dr. S. B. Barker,

"Blood Iodine."

Dr. Paul Starr,

"Blood Iodine."

Dr. Sidney Werner,

"I-131 Tracer."

Dr. F. Raymond Keating, Jr.,

"I-131 Tracer."

Discussion.

Guest Lecture.

Van Meter Award Paper.

### Afternoon

**2.00 General Session.**

#### **Exophthalmos:**

Dr. Brown M. Dobyns,  
"Pathologic Physiology and Etiology."

Dr. A. D. Ruedemann,  
"Natural Life History of Exophthalmos."

Dr. E. Perry McCullagh,  
"Medical Management of Exophthalmos."

Dr. James L. Poppen,  
"Surgical Treatment of Exophthalmos."

Discussion.

#### **Symposium on The Role of the Adrenal in Thyroid Disease:**

Dr. W. L. Money or Dr. Reis.

Drs. Statland and J. Lerman.

Dr. George W. Thorn.

**Friday, March 10th**

### Morning

**8.00 Registration.**

**9.00 General Session.**

#### **Symposium on The Treatment of Graves' Disease with I-131:**

Drs. Clark, Gordon, Richards, Chapman and Blumgart.

Discussion

#### **The Toxic Effects of I-131:**

Dr. Gorbman,

"Pathologic and Metabolic Consequence of  
High Radiation Dosages in Mice."

Brookhaven and Memorial Hospitals,  
"Distribution of I-131 in Human Beings."

Drs. Koch and Talbot,

"Porphyrins."

### Afternoon

**2.00 General Session.**

#### **Presidential Address:**

Dr. Samuel F. Haines,

"The Influence of Research on the Modern  
Treatment of Exophthalmic Goiter."

#### **Cancer of the Thyroid:**

Dr. B. J. Duffy,

"Cancer of the Thyroid in Children."

Dr. Cattell or Dr. Frantz,

"Treatment of Cancer of the Thyroid."

**4.00 Annual Business Meeting.**

**Saturday, March 11th**

### Morning

**9.00 Non-toxic (Sporadic or Endemic) Goiters:**

Dr. I. Greenwald,

"Endemic Goiter: Deficiency, Intoxication or  
Infection."

Dr. George Curtis,

"Iodine Metabolism in Non-Toxic Goiters."

"Basal Metabolic Rate and Blood Cholesterol."

Dr. F. Andrews, Title not announced.

Dr. J. Stanbury, Title not announced.

Dr. W. C. Thornell, Title not announced.

*Mrs. Snacker*  
IS  
A VITAMIN-  
LACKER

She nibbles and pieces and samples and tastes all day long. In fact, Mrs. Snacker is always hungry — except at mealtime. So her diet too often sidesteps many of the vitamins essential to balanced nutrition. • If there's a better candidate for a subclinical vitamin deficiency than Mrs. Snacker, it might be the hurrier or the worrier, the heavy smoker or the toper. These meal skimpers—vitamin-lackers all—have never learned that unbalanced eating leads to unbalanced nutrition and from there to any number of ills. • In the interval between dietary sin and complete reform, you can't prescribe better vitamin insurance than DAYAMIN. The DAYAMIN capsule is small, has a pleasing vanilla bouquet. Each capsule provides the daily optimum requirements of six essential vitamins, plus pyridoxine and pantothenic acid. One capsule daily as a supplement; two or more for therapeutic use. Your pharmacist can supply them in boxes of 30 and bottles of 100. ABBOTT LABORATORIES, LIMITED, MONTREAL.



*Specify*

**DAYAMIN**

TRADE MARK REG'D.

(ABBOTT'S MULTIPLE VITAMINS)

## COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

### Council Meeting

Winnipeg, Manitoba, October 19, 1949

The Sixty-fourth Annual Meeting of the Council of the College of Physicians and Surgeons of Manitoba was held Wednesday, October 19th, 1949, at 2 o'clock p.m., at the Medical College, Winnipeg.

The President, Dr. C. B. Stewart, called the meeting to order.

### 1. Roll Call.

The following members were present: Doctors C. B. Stewart, President; Edward Johnson, Vice-President; T. H. Williams, Treasurer; M. T. Macfarland, Registrar; A. A. Alford, B. D. Best, W. J. Boyd, C. E. Corrigan, C. S. Crawford, B. Dyma, H. Guyot, I. Pearlman, J. S. Poole, F. K. Purdie, T. W. Shaw and C. H. A. Walton.

Dr. C. B. Stewart welcomed the following new members to the Council: Dr. W. J. Boyd, Centre Winnipeg; Dr. C. E. Corrigan, South Winnipeg; Dr. B. Dyma, North Winnipeg; Dr. H. Guyot, P.S. & S.; Dr. C. H. A. Walton, University of Manitoba.

### 2. Reading of the Minutes and their approval.

The minutes of the Special Meeting of Council held May 18th, 1949, were presented to Council.

Dr. Williams stated that there were two corrections to be made in the minutes.

The Treasurer's statement regarding increase in the annual fee, on page 13 of the Minute Book, should read "that the annual fee was formerly deductible for Income Tax purposes by salaried employees, but since January 1, 1948, it is not deductible."

The Auditors pointed out that on page 10 in the Minute Book, a motion was required accepting the motions presented by the Finance Committee. Dr. Poole stated that since this was an addition it could be acted on later.

**Motion:** "THAT the words 'by salaried employees' be inserted in the Treasurer's statement on page 13 of the Minute Book." Carried.

**Motion:** "THAT the minutes of the Special Meeting of the Council held May 18th, 1949, be accepted as having been read." Carried.

### Business Arising from Minutes of Special Council Meeting Held May 18, 1949

#### (a) Report of Returning Officer and Scrutineers

The Registrar presented the following report:

As Returning Officer of the 1949 elections, I beg to report that the following member was appointed to the Council by acclamation: Neepawa, Dr. J. S. Poole, Neepawa.

The results of the elections in the remaining districts are as follows: Brandon, Dr. F. K. Purdie, Griswold; Dauphin and Nelson, Dr. C. S. Crawford, The Pas; Lisgar, Dr. C. W. Wiebe, Winkler; Macdonald, Dr. A. L. Paine, Ninette; Marquette, Dr. T. W. Shaw, Russell; Portage la Prairie, Dr. A. A. Alford, Oakville; Provencher, Springfield and St. Boniface, Dr. H. Guyot, St. Boniface; Selkirk, Dr. Edward Johnson, Selkirk; Centre Winnipeg, Dr. W. J. Boyd, Dr. T. H. Williams; North Winnipeg, Dr. B. Dyma, Dr. I. Pearlman; South Winnipeg, Dr. C. E. Corrigan, Dr. C. B. Stewart.

In the constituency of Souris each of three candidates received an equal number of votes, constituting a three-way tie.

I herein certify that this is a correct report of the details furnished by the scrutineers.

Respectfully submitted,

M. T. Macfarland, M.D., C.M.,

Returning Officer.

Drs. E. F. E. Black and W. T. Dingle, Scrutineers.

**Motion:** "THAT the report of the Returning Officer and Scrutineers be accepted." Carried.

### Election Statistics

The following statistics were prepared in reference to the 1949 elections:

Electoral Districts	Number of Physicians	Number Eligible	Number Nomination Papers Returned	Number Nominated	Number Nominations Accepted	Number Voting Papers Returned	Spoiled Ballots
Brandon.....	48	42	19	7	6	27	2
Dauphin and Nelson.....	39	34	13	6	5	21	1
Lisgar.....	12	12	7	4	2	7	1
Macdonald.....	19	18	4	3	3	7	0
Marquette.....	21	20	6	4	3	11	0
Neepawa.....	14	9	3	1	1	Acc.	0
Portage la Prairie.....	14	14	7	2	2	13	0
Provencher, Springfield and St. Boniface.....	71	67	15	9	7	41	0
Selkirk.....	38	35	5	3	2	14	2
Souris.....	15	15	7	5	5	9	0
Centre Winnipeg.....	63	54	8	4	3	26	1
North Winnipeg.....	46	43	11	3	3	32	0
South Winnipeg.....	354	342	43	27	23	149	8
Totals.....	754	705	148	78	65	357	15



### Six physicians' helpers, qualified—every one!

**1 DRYCO** . . . an easily digested, vitamin fortified infant food, which hastens recovery of birth weight, and supplies optimum nutrition during the early months of most rapid growth.

Because of its high protein, low fat and moderate carbohydrate content, Dryco enables you to prescribe a formula with a wide range of adjustment for the special as well as the normal feeding case.

**2 C.M.P. PROTEIN MILK** . . . a high-protein, lowered fat and low carbohydrate acidified milk. It has been used with great success for infant feeding in cases of diarrhoea in the bottle fed infant, dyspepsia, malnutrition due to gastro-intestinal disturbances, coeliac disease, and as a feeding for the premature infant when breast milk is not available.

**3 C.M.P. LACTIC ACID MILK** . . . is spray-dried pasteurized milk inoculated with a culture of lactic acid bacilli and incubated to a definite acidity.

C.M.P. Lactic Acid Milk has all the excellent qualities of the freshly prepared

product, and in addition is uniform and stable. It is easily and quickly reliquefied for instant use.

**4 MULL-SOY** . . . an emulsified soy bean food used as a replacement for milk in cases of milk allergy in infants, children and adults. It is palatable, well-tolerated and easy to digest.

Mull-Soy diluted with equal volume of water contains all the essential nutritional properties of average cow's milk.

**5 BORDEN'S EVAPORATED MILK** . . . a pure, fresh whole milk evaporated to double concentration, and homogenized for extra smoothness and ease of digestion in infant feeding formulas. Vitamin D increased.

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### Constituency of Souris

The Chairman stated that Souris Constituency was not represented at this meeting, since there was a three-way tie in that constituency. The By-laws state "That in the event of a tie vote being cast in any constituency, the Returning Officer shall be empowered to cast a necessary ballot," but there was doubt as to whether this would be applicable to a three-way tie.

**Motion:** "THAT the Registrar be instructed to cast a vote in the Constituency of Souris to break the three-way tie." Carried.

### Payment of Scrutineers

**Motion:** "THAT the Scrutineers for the 1949 elections be paid the fee of Twelve Dollars and Fifty Cents (\$12.50) each for their services." Carried.

### Disposal of Nomination and Voting Papers

**Motion:** "THAT the Nomination and Voting Papers of the 1949 election of the Council of the College of Physicians and Surgeons of Manitoba be destroyed." Carried.

### (b) Reciprocal Relations With Other Medical Boards

The Registrar reported that in reply to letters to other medical boards concerning reciprocal relations, he had received replies from the Medical Boards of Victoria, South Australia, and the South African Medical and Dental Council, as well as a communication from the Medical Council of India, asking whether we would be willing to enter into an agreement with that country.

The Chairman considered this was a new and important matter, and should be gone into very carefully by the Executive before reaching any decision.

Dr. Best stated that Council could not pass any judgment since they had not reached any decision in the matter. He thought that it was important and should be given thought and study by the Executive or special committee.

**Motion:** "THAT the matter concerning reciprocal relations with other medical boards be referred to the Executive Committee for further study and report." Carried.

### (c) Medical Student Registration in University of Manitoba Calendar

The Registrar reported that the regulation concerning student registration with the College of Physicians and Surgeons of Manitoba was now included in the Faculty of Medicine Calendar of the University of Manitoba.

### (d) Printing of Annual Reports—Revision of By-laws

The Registrar presented copies of the reprints from the Manitoba Medical Review, of minutes of Council and Committee meetings from September, 1948, to September, 1949. He reported that the Committee to revise the By-laws had not gone into the matter very thoroughly as yet, but had secured

an estimate for 1,000 copies, namely \$67.50. The Council considered that the revised By-laws should be presented to the members of the Council prior to the next meeting.

### (e) Dr. ....

The Registrar explained that the matter of refund of a portion of Dr. .... registration fee had been considered by the Registration Committee. A letter from the Treasurer to the Registrar stated that since Dr. .... enjoyed the privileges of employment at Deer Lodge Hospital for approximately sixteen months, and since the intent of the temporary licence provision was that any physician employed by the Federal or Provincial governments for a period longer than one year should be fully registered, a dangerous precedent might be set if the request for return of the fee were to be granted in this case. The Registration Committee resolved that Dr. .... registration fee be retained in full. This for information.

### (f) Appointment of Committee to Study Medical Act

The Registrar explained that the Liaison Committee had advised a study of the Medical Act, but since a new Council was to be elected for this meeting, the matter was deferred at the May meeting.

He stated that bound up with this question was the number of members of Council. He quoted the following figures from other Provinces: Alberta, 7 members; British Columbia, 9 members; New Brunswick, 9 members; Nova Scotia, 13 members; Newfoundland, 7 members; Ontario, 18 members; Prince Edward Island, no figure; Quebec, 21 members; Saskatchewan, 9 members.

Dr. .... stated that there was nothing in that report to change his opinion that there were too many members on the Council, especially from Winnipeg which had 6 representatives, plus two from the Medical College. He thought this number would nearly be sufficient for the whole Council. He did not think that other provinces allowed their cities any provisions because of their population.

The Chairman quoted section 5 of the Medical Act, outlining the various electoral districts in Manitoba.

Dr. .... stated that there were many committees appointed from the Council, and questioned whether there were too many members to fill these committees, and whether the committees could be adequately staffed if the number of members was reduced.

Dr. .... thought there were not too many for the number of committees, since the burden would be put on a few who were available, particularly the Registration Committee which has the big job. He thought this problem should be considered by the committee to study changes in the Medical Act.

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*phenacetin 0.23 Gm. (3½ grains)*

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Dr. .... stated that outside of the Registration Committee, the committees had not very much to do. Some of them never meet during the year.

Dr. .... pointed out that there were 342 eligible members in South Winnipeg, and 266 eligible members outside of Winnipeg.

Dr. .... thought that judicial districts were much better than parliamentary districts, and suggested that a committee should consider the matter.

Dr. .... inquired whether this committee could be comprised of members from the Legislative and Executive Committees, and questioned whether the total revision of the Medical Act should be in consultation with the Manitoba Medical Association.

Dr. .... stated that it was thought that the Liaison Committee would be the one to study the Medical Act, but with the addition of the question of electoral districts, it should be considered by one of our own committees, and then discussed with the Liaison Committee.

**Motion:** "THAT the question of revising the Medical Act and electoral districts be referred to the Legislative Committee." Carried.

#### (g) Foreign Graduates

For information of the new members of Council, the Registrar reported that one year ago the University of Manitoba was asked to take over the assessment of the documents of foreign applicants. No reply was received from the University. At the Council meeting in May three stipulations were made for the guidance of the Registration Committee: "That in lieu of assessment on the basis of documentary evidence alone, the applicant for an Enabling Certificate to write the examinations of the Medical Council of Canada be required to produce evidence of clinical qualification as follows: 1. A Certificate of Credit under the Basic Sciences Act. 2. A certificate that he has passed the examinations of the fourth year in the Faculty of Medicine, University of Manitoba. 3. A certificate that he has satisfactorily completed a 12-month internship in an approved hospital." He stated that a new committee has been set up by the Medical Faculty for the assessment of documents of those seeking entrance to advanced standing, and hoped that the Registration Committee would be able to prevail upon the members of this committee to give some help in dealing with applications from foreign graduates.

As an illustration of the type of application the Registration Committee has to deal with, the Registrar quoted the application for an Enabling Certificate to write the examinations of the Medical Council of Canada, of a graduate of McGill University. This man took 3 years at the University of Cracow, Poland, 1 year at the University of Bologna, Italy, 1 year at the Paderewski Hospital

Medical School, Edinburgh, Scotland, and 1 year at McGill where he received the degree of M.D., C.M. McGill requires a student to obtain his medical degree and then spend one year as an interne before writing the examinations of the Medical Council of Canada. This doctor spent one year as junior interne at the Queen Mary Veterans Hospital, Montreal, and is now a senior interne in Internal Medicine at the same hospital. He has not applied to the C.P. & S. of Quebec for an Enabling Certificate, because that province requires citizenship.

Dr. Stewart stated that Quebec and Ontario are the only provinces which require citizenship, and that Manitoba's greatest stumbling block has been the Basic Sciences Certificate of Credit.

#### (h) Dr. ....

The Registrar presented a letter from the Superintendent of the Hospital for Mental Diseases, Selkirk, advising that Dr. .... had been readmitted and would require a prolonged period of hospitalization.

After considerable discussion the following motion was passed:

**Motion:** "THAT the name of Dr. .... be erased from the register for professional incompetence." Carried.

#### (i) Registrars' Meeting, June 16, 1949, Saskatoon

Dr. Macfarland stated that he attended the meeting of the Registrars held in Saskatoon on June 16, 1949. He said that the Registrars' Conference is an unofficial gathering of Presidents and Registrars of Provincial licensing bodies for the mutual exchange of points of interest. Given full representation from each of the Boards and adequate time for discussion of the problems raised, the meeting might be of greater benefit, but sandwiched between the many conflicting gatherings which are held coincidentally with the Annual Canadian Medical Association meeting, sufficient time is usually not available to ensure a full turnout and adequate discussion.

Matters discussed at the meeting were interne registration, internship before Enabling Certificate, licensing of doctors employed by the Dominion Government, Enabling Certificates for European graduates, Reciprocity with G.M.C., U.K., and definition of a Basic Licence.

#### (j) Dr. .... and Dr. ....

The Chairman explained that at the time of the May meeting, letters were read from these two doctors, advising that they had lost their registration certificates, and requesting copies. The Council considered they should each pay a fee of Five Dollars (\$5.00) for issuance of a duplicate certificate. Letters have since been received, advising that they had found their original certificate.

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**Department of Health and Public Welfare**  
**Comparisons Communicable Diseases — Manitoba (Whites and Indians)**

DISEASES	1949		1948		Total	
	Dec. 4 to Dec. 31, '49	Nov. 6 to Dec. 3, '49	Nov. 28 to Dec. 31, '48	Oct. 31 to Nov. 27, '48	Jan. 2 to Dec. 31, '49	Dec. 28, '47 to Dec. 31, '48
Anterior Poliomyelitis .....	2	10	1	9	115	137
Chickenpox .....	207	360	366	382	1658	3068
Diphtheria .....	0	1	9	7	17	49
Diphtheria Carriers .....	0	1	0	0	5	10
Dysentery—Amoebic .....	0	0	0	0	0	3
Dysentery—Bacillary .....	4	5	0	4	30	16
Erysipelas .....	4	3	6	6	32	42
Encephalitis .....	1	4	0	0	34	4
Influenza .....	18	9	9	5	221	151
Measles .....	253	449	521	353	6045	1545
Measles—German .....	2	1	2	0	108	36
Meningococcal Meningitis .....	0	2	0	1	26	15
Mumps .....	11	17	248	186	963	2119
Ophthalmia Neonatorum .....	0	0	0	0	1	0
Pneumonia—Lobar .....	23	21	14	19	199	159
Puerperal Fever .....	0	0	0	0	3	2
Scarlet Fever .....	52	111	25	19	287	249
Septic Sore Throat .....	4	14	7	0	50	25
Smallpox .....	0	0	0	0	0	0
Tetanus .....	0	0	0	0	3	6
Trachoma .....	0	3	1	0	5	2
Tuberculosis .....	85	72	66	81	1127	1475
Typhoid Fever .....	0	1	0	0	12	9
Typhoid Paratyphoid .....	0	0	0	0	0	2
Typhoid Carriers .....	0	0	0	0	4	2
Undulant Fever .....	3	5	0	0	27	15
Whooping Cough .....	4	9	11	10	175	306
Gonorrhoea .....	87	108	143	83	1426	1478
Syphilis .....	29	28	61	26	407	498
Diarrhoea and Enteritis, under 1 yr.	11	27	10	10	280	177

Four-Week Period, December 4 to December 31, 1949

DISEASES (White Cases Only)	*779,000 Manitoba	*661,000 Saskatchewan	*3,825,000 Ontario	*2,982,000 Minnesota
Anterior Poliomyelitis .....	2	1	3	18
Chickenpox .....	207	213	1193	---
Diarrhoea and Enteritis .....	11	1	---	---
Diphtheria .....	---	1	10	14
Diphtheria Carrier .....	---	1	---	---
Dysentery—Amoebic .....	---	1	1	1
Dysentery—Bacillary .....	4	---	2	8
Encephalitis .....	1	---	2	2
Erysipelas .....	4	2	3	---
Influenza .....	18	1	11	1
Infectious Jaundice .....	---	---	81	---
Measles .....	253	407	907	257
Measles, German .....	2	20	189	---
Meningitis Meningococcal .....	---	---	3	8
Mumps .....	11	40	1304	---
Pneumonia, Lobar .....	23	---	---	---
Scarlet Fever .....	52	10	192	84
Septic Sore Throat .....	4	2	7	9
Tuberculosis .....	86	37	99	197
Typhoid Fever .....	---	1	2	1
Para-Typhoid .....	---	---	3	---
Tularemia .....	---	---	1	1
Undulant Fever .....	3	2	6	11
Whooping Cough .....	4	5	158	47
Gonorrhoea .....	87	---	318	---
Syphilis .....	29	---	89	---

\*Approximate population.

**DEATHS FROM REPORTABLE DISEASES**

For Four-Week Period, November 30 to December 27, 1949

**Urban**—Cancer, 38; Diphtheria, 1; Influenza, 1; Pneumonia, Lobar (108, 107, 109), 5; Pneumonia (other forms), 9; Syphilis, 2; Tuberculosis, 9; Diarrhoea and Enteritis, 3. Other deaths under 1 year, 19. Other deaths over 1 year, 222. Stillbirths, 21. Total, 262.

**Rural**—Cancer, 41; Influenza, 5; Pneumonia (other forms), 19; Poliomyelitis, 1; Syphilis, 1; Tuberculosis, 18; Diarrhoea and Enteritis, 1. Other deaths under 1 year, 14. Other deaths over 1 year, 215. Stillbirths, 12. Total, 241.

**Indians**—Influenza, 2; Pneumonia (other forms), 4; Tuberculosis, 3; Diarrhoea and Enteritis, 2; Dysentery, Bacillary, 1. Other deaths over 1 year, 4. Stillbirths, 3. Total, 7.

This is the final four-week report for 1949 and also shows the preliminary totals for the year.

**Poliomyelitis**—A smaller number of cases in 1948 but as there were quite a few bulbar cases the case fatality rate was high. There were ten deaths.

**Diphtheria**—Only 17 cases and 13 of these were in the City of Winnipeg. We hope that this disease is coming under control.

**Encephalitis** was more prevalent than usual in 1949.

**Diarrhoea and Enteritis** (under one year) increased in 1949 and is one of our most serious public health problems.

**Typhoid Fever** increased slightly in 1949. Six of the cases were white persons and six were Indians. Our chief problem with this disease now seems to be Indians because of their poor knowledge and interest in personal hygiene and sanitation.